DOMESTIC ENGINEERING

A Weekly Record of Progress in Plumbing, Heating, Ventilation and all Matters Pertaining to Domestic Sanitation

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The changed conditions brought about by the conclusion of the armistice and the manifest inability of Germany to renew the conflict, emphasizes the importance of resuming with as little delay as possible, the normal industrial activities of peace. Construction work, which has been delayed because of the necessities of war, should now be resumed, and I have therefore instructed the Supervising Architect to invite bids for the construction of new buildings and extensions authorized by the Congress.—W. G. McAdoo, Secretary of the U. S. Treasury.

RECONSTRUCTION.

THE great task of reconstruction has begun with full steam ahead. The transition from a war basis to one of peace and prosperity is swinging steadily forward. The smoke of battle has vanished. Those, who gave their last full measure of devotion, are at rest in the arms of mother earth. The poison gas of business depression, which for four years has settled down upon civil business and industry, has lifted, and we see the golden disk of activity and progress glistening across the sea of industry.

The seven seas have been cleared of the unseen menace. Oceanic freedom is now assured to trade and commerce. The steel-clad perils, that lurked in the deep, surrendered their last vestige of power, when they steamed through a lane formed by a mighty armada of the navies of the world—of truth, of justice and of democracy.

The Government has accelerated the readjustment program by recently removing all the remaining restrictions on non-war construction throughout the country, so that all building operations, curtailed by the war, may now be resumed.

Chairman Baruch, of the War Industries Board, has stated that building operations of whatever character, held up in the interests of the war, may now proceed without the necessity of securing special permission.

War department readjustment orders have recently halted contracts for supplies and war materials, and, according to advices from Washington, the Government will cancel, within thirty days, contracts representing six billion dollars.

"In the termination of contracts for supplies and war materials, etc.," says Newton D. Baker, Secretary of War, "the Government is working in close harmony with the War Industries Board and the Department of Labor, in order that there may be the utmost freedom for the resumption of civil business, and the most complete opportunity for labor, released from war industries and military service, to find suitable and profitable industrial and commercial employment."

Viewing the business situation from all angles, and particularly from the governmental one, it is very evident that Uncle Sam is not going to desert the interests of civil industry now that the war is over. Industry stood loyally by the Government during the trying months of our participation in the great conflict. Hence there is no reason to believe that the Government will not stand loyally by industry in all its ramifications. We may rest assured that the Government is fully cognizant of the importance of co-operating to stabilize conditions and of assisting industry to return to a normal and healthy peace basis. Uncle Sam will assuredly not accord a perfunctory "thank you," or "good bye" to business and industry, but will reciprocate to the extent of one hundred per cent of co-operation.

In business and industry we must either go forward or turn back. The word must be forward. The fine esprit de corps, shown by American soldiers in holding and advancing the line, will now be emulated on the firing lines of industry.

American business and industry will and must advance the lines of trade and commerce during the reconstruction era. We must set the standard. We must set the pace. The extraordinary efficiency displayed by American brains and energy will serve the nation mightily in the achievement of peace.

Building interests have due reason to feel optimistic, judging from the reports from different sections of the country, where large civil operations, which were delayed by the war, are showing distinct signs of renewed activity. Smaller building operations are also manifesting marked indications of revival.

Men in the plumbing and heating industry will therefore come into their own after the years of hardship that unfortunately became the portion of so many in the trade. Now that the restrictions have been lifted from building operations, the trade can proceed to advance energetically the slogan, "Build Bigger Business," which was patriotically restrained from full expression by the plumbing and heating industry during the war.

FUEL SAVING HEATING SYSTEMS

Automatic Temperature Regulation and the Insulation of Boiler and Piping are Effective Methods of Saving Fuel

By Alfred G. King

IN conversation with a local Fuel Administrator the writer was recently asked, "Cannot something effective be done by you engineers and steam fitters to impress upon the house owner the importance of saving fuel in the home heating apparatus? I have never before realized how tremendous is the waste. The repeated warnings of the administration seem to have but little permanent effect."

We were glad to assure him that much was being done by the heating trade in this direction and called his attention to "Domestic Engineering" and cited several editorials and articles which have been published by this magazine.

Are we heating men—engineers, contractors, and steam fitters—alive to the importance of giving our time and effort towards the support of the government by carrying on an effective fuel saving campaign? We have, by united effort, assisted in carrying the several Liberty Loans, Red Cross and other important campaigns, over the top. We can by the same united effort prevent much of the present fuel wastage and save millions of pounds of coal.

The house owner has installed a heating apparatus in the home for the comfort and convenience of the occupants and, as a usual thing, has given much thought and attention to secure a modern efficient system. There are many people, however, who seem to think that having equipped the home with a modern system of heating, the apparatus will henceforth run itself, to all appearances believing that the only attention required is to put coal in the heater and remove the ashes.

While true that modern engineering science, as applied to the heating industry, has evolved many highly efficient automatic devices to lighten, in a large measure, the care necessary to the proper operation of the heating apparatus, the great majority of the systems in use to-day is without such appliances. The omission of such equipment, coupled with the fact that seventy-five per cent of such apparatus are woefully mismanaged, is responsible for the larger part of the fuel waste, for the principal unfortunate result of this mismanagement or carelessness is the consumption of an excessive amount of fuel. In the endeavor to maintain the proper temperature within the home much coal is wasted by a fitful firing of the heater. In larger buildings—those of sufficient size to warrant the employment of an attendant to look after the heating apparatus—little cause for complaint arises, even though such buildings are without automatic heat control, as the fireman, in the effort to lighten his labor will invariably discover the best method of operating the apparatus in order to lessen the attention and fuel required. While regular and careful attention no doubt prevents much waste, automatic regulation would show a decided saving.

Each succeeding decade witnesses a growing scarcity of fuel and, even in normal times, a consequent corresponding increase in its cost to the consumer. The manufacturers of every kind of heating apparatus have, in recent years, given much thought and study—we may also say, effort and money—in their endeavor to increase the efficiency of their product.

This word "efficiency" has secured lately a great deal of prominence, as meaning much to the world's progress and development. To-day we recognize scientific efficiency in all lines of endeavor. Temperature regulation in the shape of automatic controlling devices for regulating the drafts of the heater, according to the varying temperature of the rooms, can be regarded as scientific efficiency applied to the heating apparatus, for of all the accessories to a warming system none other is so important.

Intermittent heating, that is, allowing the rooms to cool below the temperature desired, and then opening the drafts of the heater fully in order to again raise the temperature as quickly as possible, permitting the rooms to become overheated, causes the needless burning of considerable excess fuel. To maintain the rooms at an unvarying temperature of 70 degrees (or other desired standard) during the day and, say, 60 degrees during the night, requires the burning of less coal, as the heat units distributed through registers or radiators are not cooled as rapidly as would otherwise be the case.

Automatic Temperature Regulation

The price of automatic temperature regulation is not prohibitive of its use. Regulators or thermostats ,as they are frequently called, cost the consumer but from $50 to $85 complete, according to the kind selected, and no user of a steam, vacuum, vapor or a hot water heating apparatus can afford to operate his plant short such an appliance. The saving in fuel consumption in warming an average size house will, as a rule, approximate two tons of coal per heating season. Considered on the basis of a business proposition, isn't it wise to secure a regulator at a cost of $50 or $85 with the knowledge that the investment will return from twenty-five to fifty per cent interest yearly? This phase presents one reason for our claim that no user of a heating apparatus can afford to be without a system of temperature regulation, and in making this statement we have not considered its value in further increasing the comfort and health of the occupants of the home.

Of healthfulness, secured by a uniform temperature, it seems necessary only to remark that all those physicians and scientists who have carefully studied the subject agree that next to proper ventilation of our homes a uniform degree of warmth is essential to good health.

The details and facts here presented form the basis of a

good line of convincing selling talk for use with the house owner. They should be fixed in the mind of the heating contractor, and any other available facts, in order to the more successfully spread the gospel of fuel conservation by means of temperature regulation.

The various types of regulators for use with domestic heating apparatus may be divided into two general classes; (a) Those controlled by the temperature within the apparatus; (b) Those controlled by the temperature within the building. There are several different makes and styles of each type, those of class (b) being specially adaptable for controlling the temperature in residences, and this kind may be divided into two groups, namely, electric and non-electric, the most popular being those of the electric variety.

All electric thermostats have a positive and a negative action of the motor or other mechanism which controls the drafts. This action of the motor opens or closes the draft doors of the boiler automatically in conjunction with each other, the check damper opening as the draft door closes and vice-versa; therefore no matter what type of a thermostat is installed it should be attached in such a manner that the draft and check doors operate in unison. This is accomplished by a simple method of adjusting the guide chains which are run over pulleys in making connection between the motor, check and draft doors.

The only part of the regulating device which appears above the basement is the thermostat, a little device which is placed on the wall of the living-room or a room more generally occupied. This has been called a mechanical thermometer. The thermostat is usually covered with a handsomely finished metal frame to which is attached a mercurial thermometer. A wallplate or frame is fastened to the wall and attached to this plate is a piece of metal in the form of a loop or ring. One end of the loop is made fast the other hangs free. Attached to the loose end is a strip of metal or a blade which is very sensitive. The slightest change of temperature will expand or contract the loop and cause a side motion of the metal blade which is held between platinum tipped screws or contact points. If the temperature of the air in the room rises, the loop expands, and the blade is thrown against one set screw closing the circuit communicating with the motor in the basement, which operates to close the draft door of the boiler and open the check door. When the temperature of the room falls slightly below the degree at which the thermostat is set, the loop contracts and the blade is thrown against the pin on the opposite side of the frame, the action of the motor is reversed, and the fire is checked. This operation is entirely automatic and may occur dozens of times daily, and the changes are made so quickly and quietly that the fact that the temperature is above or below the required point has not been noticed by the occupants of the room.

Practically all of the so-called electric thermostats make use of two or more cells of dry battery—open circuit battery, the same as used for door bell work. These batteries supply the current for controlling the motor. Wires run upward through the partition to the back of the thermostats that are connected with the motor. The cells of battery are connected in series and the wiring of all thermostats or regulators is practically the same.

An attractive feature, which has in recent years been added to the best thermostats, is the time attachment. This consists of a small clock, similar in mechanism to the common type of alarm clock, which is attached to the thermostat in such a manner that it can be set to open the drafts of the heater, at any pre-determined hour. For instance, the house may be cooled to 60 degrees, or any other temperature, during the night, and at a pre-determined hour in the morning the clock will operate, opening the drafts of the heater, and place the thermostat in service and the family can later arise in rooms warmed to a comfortable temperature.

In connection with temperature regulation it is interesting to know that the development of automatic temperature regulating devices covering the entire period of experimenting with and perfecting such appliances, has occurred during the past thirty-five years. The late W. S. Johnson, of Milwaukee,—a pioneer in temperature regulation—in a personal letter to the writer, written some years before his death, said that he started working with a pneumatic regulating device in 1883 and that shortly thereafter the Minneapolis Electric Regulator (for use with furnaces and small heaters) was devised. The Minneapolis Regulator, aside from certain refinements in mechanism and appearance, remains to-day in principle the same as when first offered to the public. In recent years many other thermostats or regulators have been developed and placed on the market, among them being the Honeywell, Marvel, Jewell and others. A number of these have acquired a nation-wide reputation for effective service.

Pipe and Boiler Covering.

Fully as important as a means of saving fuel is the covering or insulation of exposed heater surfaces and bare piping. In many districts the number of heating plants having piping uncovered is astonishing, when it is considered that the economic value of covering steam and hot water piping has long been recognized.

It is usual to cover heater surfaces and fittings with plastic covering and the pipes with sectional covering—that is, covering moulded or manufactured into cylindrical shape and in lengths of about three feet. Each length is covered with canvas or muslin and, to facilitate application, is split lengthwise. The sections are placed over the pipe, the muslin or canvas flap pasted down, and then held in place by metal straps or bands.

The materials used vary. Hair or wool felt, asbestos or rock fibre, powdered magnesium and other materials are used. It is required of insulating material that it be fire-proof, a good non-conductor, easily moulded or applied and not attractive to vermin.

The kind of covering that should be used and the thickness to which it should be applied is determined by the service it is to perform. The common two or three-ply air cell, ½ or ¾-inch asbestos felt and similar coverings are intended for low pressure steam, vapor or hot water piping. These, of course, would not be of the character required for high pressure or superheated steam pipes. For this service a good grade of asbestos or moulded magnesia covering is required. Likewise, where covering ½, ¾ or 1-inch thick is sufficient for ordinary purposes, a covering 1, 1½ or 2-inches should be used for high pressure work.

As there is comparatively little difference in the cost of ½ or ¾-inch, or of two-ply or three-ply covering (the cost of the labor to apply it being the same) it is good judgment to use the thicker grade for covering domestic heating piping. The plastic covering of boiler surfaces —fire pot, dome, etc.—should be applied not less than 1½ or 2 inches thick at the most shallow points, and it should be put on in two coats, the first a rough coat which is allowed to harden well before the second coat is applied. The second application should be troweled smooth. A small portion of cement or plaster of Paris mixed with the finishing coat will give the covering a hard exterior finish capable of withstanding ordinary knocks or abuse.

The saving in fuel made by insulating the piping and heater of a house heating apparatus has been estimated as high as thirty or forty per cent. The majority of steam fitters and heating contractors realize that covering effects a saving but have very vague ideas as to the amount of this saving. Many tests of various kinds have

been made, and the results of such tests have been recorded, but it is a peculiar circumstance that none of these results show the same percentage of saving. No pipe covering will prevent all of the waste. One conclusion arrived at is that the heat loss from a bare pipe ranges from 2 to 4 B. t. u. per hour per degree difference in temperature between the steam or hot water and the air surrounding the pipe. Supposing the air in a basement is at 50 deg. Fahr. With hot water at 180 degrees the temperature difference is 180 less 50, or 130 degrees. Assuming the heat loss to average 3 B. t. u. per square foot of surface per hour per degree difference, the result (130 x 3) is 390 B. t. u. for each square foot of surface in the piping. For steam at 219 degrees (2-lb. gauge pressure), estimating in like manner, the loss is 507 B. t. u. for each square foot of surface.

These results correspond closely with the statement of Prof. Carpenter, who estimates that the heat loss per square foot of surface in small uncovered pipes is from 375 to 400 B. t. u. per hour.

To realize the full meaning of this loss let us consider, for an example, the uncovered piping of a good sized residence hot water heating system. When measured this piping approximates 20 ft. 2½ in., 25 ft. 2 in., 20 ft. 1½ in., 40 ft. 1¼ in. and 25 ft. 1 in.—about 62 sq. ft. of surface. To this should be added the sq. ft. of exterior surface of the boiler which on a job of this size would approximate 25 sq. ft., making a total of 87 sq. ft. of uncovered surface.

To make a just and reasonable estimate of the probable loss by leaving this surface uncovered we should carefully consider what conditions might prevail during the cold weather. First, let us consider the heating year or season as being 210 days. Second, we may safely assume that the average temperature of the basement or cellar air during this period will approximate 60 degrees. Third, we must consider that the boiler will be operated to capacity only during very cold weather and, if the radiation, piping, etc., is properly proportioned, the water in the system during this time will be heated to about 180 degrees. During milder weather, and during a part of the night, the water will be allowed to cool to a temperature of 100 degrees. The mean or average temperature of the water for the season then is 140 degrees, and 140 less 60 equals 80, which is the average temperature difference between the water in the pipes and the air surrounding them.

With an average loss of 3 B. t. u. per degree difference per hour, 80 times 3 equals 240 the B. t. u. loss per sq. ft. of surface, and 240 times 87 (the sq. ft. of uncovered surface) gives a total hourly loss of 20,880 B. t. u. This amounts to 501,120 B. t. u. for a 24-hour day.

Assuming that anthracite coal containing 14,000 B. t. u per pound is used for fuel and that it is burned at an efficiency of 60 per cent (a fair average), then 501,120 divided by 8,400 (60 per cent of 14,000) equals about 60 pounds of coal as a daily loss. This amounts to 8,600 pounds, or more than four net tons for the season. With coal costing $9 per short ton the loss represents 6 per cent interest on an investment of $600.

If these figures are corrett (and we have purposely considered a minimum of every factor contributing to the loss), is it not of vital importance that every square foot of uncovered surface in the boiler and piping of every heating apparatus be carefully and thoroughly insulated?

Buy United States War Savings Stamps.

WHY ADVERTISE?

This morning I was awakened by an *advertised* alarm clock, rolled off an *advertised* mattress and slid into an *advertised* bath room, laundered my teeth with an *advertised* tooth paste, lathered my face with an *advertised* shaving cream with an *advertised* shaving brush and shaved with an *advertised* safety razor, used an *advertised* soap in the bath, bathed my face with an *advertised* face lotion, sprinkled myself with some *advertised* talcum powder, got into an *advertised* union suit, pulled on a pair of *advertised* socks, snapped on a pair of *advertised* garters, put on an *advertised* shirt and an *advertised* collar, eased myself into a suit made by an *advertising* tailor, laced on a pair of *advertised* shoes and made a bee-line for the breakfast-room.

Ate an *advertised* orange, an *advertised* cereal, cooked in an *advertised* cooking utensil on an *advertised* gas range, used an *advertised* spoon and some *advertised* cream, used some *advertised* butter and some toast made of *advertised* bread on an *advertised* toaster, drank a cup of *advertised* coffee, made in an *advertised* percolator, lit an *advertised* cigarette with an *advertised* match, grabbed an *advertised* hat and rode to an *advertised* town in an *advertised* automobile with *advertised* tires, consuming *advertised* gasoline and wrote this truth on *advertised* paper with an *advertised* typewriter and I have just started the day.—William R. Marshall.

NEAR NO MAN'S LAND.

By Private B. A. Schak, 16th United States Infantry.

There wa'n't no bugler there a-blowin' taps;
The regimental chaplain, tho, was 'round;
An' I'm a tellin' you as how I'm feelin' blue,
'Cause they put my rookie Buddy in the ground.

I showed 'im how to do "right shoulder arms".
An' told him all a doughboy oughta know;
We slept together, but to-day he sleeps
Near "No Man's Land," beneath the mud an' snow.

He said 'is ma an' sister back at home
Kissed 'im a dozen times in fond good-bys
An' when 'e talked about 'em I could see
That look o' longin' shinin' in his eyes.

I hate to think o' how 'is mother feels—
A mother's loneliness is worse 'n mine.
I'd write 'is folks a letter, only that
This writin' business ain't much in my line.

I don't know what to do when I'm off post.
My Buddy's gone; an' seems like all I know
I'd like to put a flower on 'is grave
Near "No Man's Land," beneath the mud an' snow.

—From "The New York Tobacco."

But He Died Young.

"I once knew an eccentric man," stated old Festus Pester, "who when he had got the desired number on the telephone did not demand fiercely, 'Whizz ziss?' Instead he invariably said civilly, 'This is John J. Poppendick, wishing to speak to Mr. Buckover.' His funeral was the largest ever held in the neighborhood where he had resided, and thereat strong men broke down and wept like children, being convinced that they would never again see his like."—"Judge."

The WHY *and* WHEREFORE *of* SANITARY ENGINEERING

A Series of Articles on Technical and Scientific Plumbing and Sanitation

By Arthur Bateman

(Continued from Page 163 in the November 2nd Issue.)

WATER SUPPLY.

Water Essential to Life.

WATER is a prime necessity of life, and the health of a nation is governed largely by an abundant and pure supply. In the absence of plenty of wholesome water life can only exist in lowly organized beings, and in them only in a dormant state.

It is absolutely imperative that water, in some form, be consumed with our food so that the solid portions are changed and dissolved, and its nutrient properties allowed to intermingle with our blood, which enriches it and builds up our body tissues.

It occurs in abundant quantities not only in and on the earth, but in numerous forms and conditions barely recognizable to us. Practically speaking, all organic matter, that is everything possessing life or capable of growing or developing, contains large quantities of water, which evaporates when heat is applied. Take for example the human body. Assuming a man weighs 150 pounds, if all his moisture could be evaporated by placing his body in an oven and heating, the solid residue remaining would only weigh 40 pounds.

Ancient Water Supply Systems.

Boston, Mass., was the first town in the United States to construct water works, and that was in the year 1652, but ages before this the value of good water was appreciated and wells 1,500 feet deep, sunk through solid rock, in almost precisely the same manner as practiced today, are to be found in China.

Elliptical lead water pipes with burned seams, over 2,000 years old, have been dug up in the ruins of Pompeii, and it is said that Hippocrates thought there was danger of drinking water derived from lead pipes, and even went so far as to recommend the boiling and filtering of contaminated water.

Abundant Supply Imperative.

Next to fresh air, water is about the cheapest thing procurable and although desirable to avoid all unnecessary waste, the public should not be encouraged to use it sparingly. Granted that we use, in some instances, five times the quantity that European cities of corresponding population consume, it must be remembered that money is not so plentiful on the other side of the Atlantic, that water meters are in general use, and that the ordinary household has not one-half the sanitary appliances that we require for our health, convenience and comfort.

The approximate daily consumption figures, in gallons, clearly prove the above contention to be correct. Philadelphia, Pa., consumes 240 gallons per person per day; Buffalo, N. Y., about 300 gallons; Chicago, 220; London, England, 42; Paris, France, 53; Cologne, Germany, 34; and Venice, Italy, 11 gallons.

Where the Water Goes.

It is customary to divide the quantity of water used into three classes, namely: Domestic, municipal and commercial. Under the first head we need water for drinking and cooking purposes, for personal cleanliness, such as

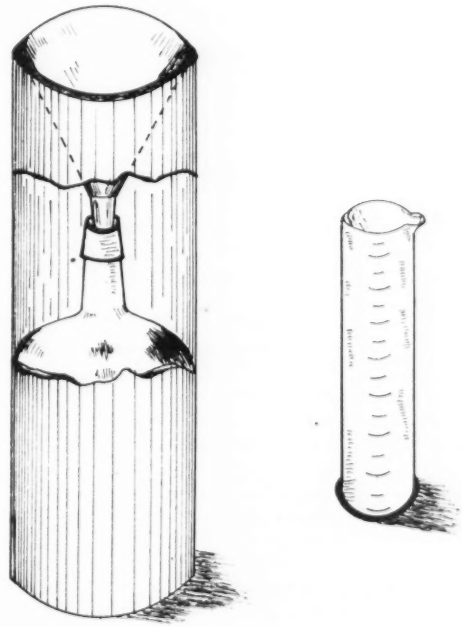


Fig. 1.

washing, bathing, etc., for washing clothes, eating and cooking utensils, etc., for heating the buildings, for flushing water closets, urinals, drains, to which must obviously be added quite a number of gallons for unavoidable waste. Under the head of municipal use comes the watering of horses and cattle, for extinguishing fires, for watering grass and shrubs in public parks, for watering and cleansing of public streets, for public baths and swimming pools, and for public fountains, drinking fountains, etc.,

to which again must be added a large percentage for unavoidable waste. Finally, we have the various trades and manufactures, oftentimes consuming as much water as is required for all domestic purposes; the brewers and dyers lead the procession in this respect.

The following table gives the minimum, maximum and average number of gallons required for all purposes in an ordinary city under normal conditions:

	Minimum	Maximum	Average
Domestic	15	40	25
Commercial	5	35	20
Public	3	10	5
Loss	15	30	25
Total	38	115	75

Where the Water Comes From.

We are entirely dependent on our rainfall for all natural sources of water supply. Under the influence of the sun's rays a portion of the sea and all surface water rises in the form of an invisible vapor forming the clouds, which when saturated with moisture fall, under changes of temperature, to the earth in the form of rain, snow, hail or sleet. On reaching the earth, one-third is again evaporated and forms more clouds, one-third flows over the surface of the ground and forms our rivers, lakes, streams, etc., and one-third percolates through the earth forming our underground sources of supply, such as springs, artesian wells, shallow wells, etc.

Our supply is drawn from one of these sources, is consumed and finds its way back through the drainage system to its original source, and the whole operation is repeated times without number, thus keeping up a continuous circulatory movement.

The rainfall varies very considerably in different localities, and at different periods of the year. The maximum rainfall occurring along the North Pacific Coast, where the average annual fall exceeds 64 inches. The minimum fall is found between the Sierras and the Rocky Mountains, and only totals from 4 to 18 inches annually. The average, throughout the United States, may be taken at 40 inches per year.

The average annual rainfall in New York is 44 inches; Chicago, 34 inches; San Francisco, 23 inches; New Orleans, 60 inches; Vicksburg, 52 inches, and Yuma, 2 inches.

The rainfall can easily be measured by an instrument called the rain gauge, shown in Fig. 1, which consists of a copper cylinder usually 18 inches in height, and 6 inches in diameter. Inside this fits another cylinder or bottle provided with a funnel. To measure the rainfall, pour the contents into a graduated glass measure, which is divided into one-tenths, and one-hundredths parts of an inch, and holds half an inch when full. If snow has fallen it must be melted with a known quantity of hot water, and this deducted from the result. If the snow is heated over a fire or the like, a quantity will be lost by evaporation.

Varieties of Water.

The water, which is carried up in the form of vapor, is practically speaking, distilled water, and as such exists in its purest form. However, when it is precipitated as rain or snow, it gathers many impurities from the air, and is always more or less contaminated. Further, it is short of oxygen and consequently insipid and unpleasant to the palate. However, if the rain is of long duration, the air becomes thoroughly washed and the water which falls thereafter is very good.

If the rain falls on hard volcanic rocks such as quartzite, or sandstone, or on marshland, upon which it has no action, it remains good and is known as "soft" water.

Water flowing over or percolating through limestone, chalk or marble dissolves some of this and becomes "temporary" hard. There are vast quantities of calcium found in nature in the form of carbonate, $CaCo_3$, as milestone, marble, and chalk. It also occurs in the form of magnesium, sulphate and gypsum, $CaSo_4$. Waters containing the latter in solution are known as "permanently" hard waters.

The hardness of waters is measured in degrees. One grain of $CaCo_3$ or $CaSo_4$ in one gallon of water is known as 1 degree of hardness. Water is spoken of as soft water up to and including 6 degrees of hardness, above this it is termed hard water. Obviously the degrees of hardness vary considerably, but it is not uncommon to find waters containing 50 grains of lime in solution in every gallon of water. This is perfectly invisible, and, generally, hard waters are brighter and clearer than those which are soft.

Mineral springs are derived from land containing car-

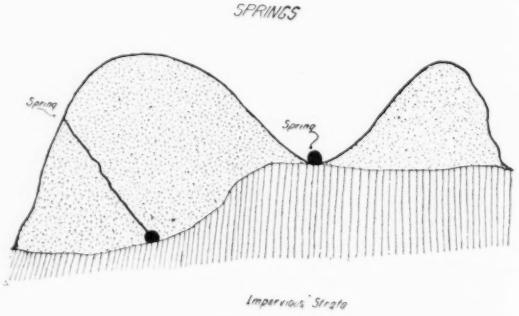


Fig. 2.

bonic acid, sodium carbonate, sodium sulphate, sodium chloride or common salt, iron carbonate, magnesium sulphate and hydrogen sulphate, all of which are readily soluble in water.

Carbonated waters contain large quantities of carbonic acid in solution and give off carbon dioxide gas when exposed to the air.

Waters containing some compound of iron in solution are known as Chalybeate, while the sulphur waters contain the gas hydrogen sulphide.

Common salt is easily soluble in water, and as it occurs in large quantities in different parts of the earth as well as most streams, which find their way to the ocean, one can understand why the sea is salt.

How Waters Affect Metals.

Soft water is undoubtedly the best procurable for all domestic purposes, as it is the most economical, saving considerable soap and much labor. However, great care must be exercised in selecting the metals to be used in connection with it. It readily attacks iron and corrodes it.

Further, whenever the water attacks the iron in this manner, it carries the metal both in solution and suspension, and although it may possess medicinal and beneficial qualities for a certain class of consumers, it is, however, objectionable to have a reddish brown deposit settle to the bottom of your table water. Besides, the convection currents taking place in the domestic hot water system stir up all sedimentation in the heater and oftentimes deliver it at the faucets in such quantities as to make even the washing of household utensils with it impracticable.

Notwithstanding, it must be classed as a good water, and if copper, tin, iron lined with copper or tin, tin lined

lead, glass enameled iron, slate, or porcelain are used for all heaters, pipes, house tanks, water closet tanks, etc., the above mentioned troubles will be eliminated, for soft water has little or no action on these materials.

Soft water also attacks zinc, not so readily perhaps as iron, but galvanized iron simply consists of iron coated with a thin film or skin of zinc which prolongs the life of plain iron.

Soft Water.

As previously pointed out soft water is a most valuable asset to every community, yet we of all people know how long it takes to educate the public, and perhaps after all in those localities blest with an abundant quantity of good soft water, it is advisable to treat the water on a large scale before delivering it to the consumer. This, of course, is practical, and the addition of lime to the water coupled with sand filtration, will eliminate the acidity and render the erosive power inert.

Hard Water.

Coming now to temporary hard water we find that although it is odorless, clear, sparkling, tasteless, palatable, and if not contaminated is a good drinking water, yet it possesses many objectionable features which oftentimes prohibit its use as found in nature without treatment.

In the first place, let us assume that the water contains 32 degrees of hardness. This means that 32 grains of soap must be added to the water before the lime is neutralized and a lather can be produced, to say nothing of the labor expended before a desirable water is forthcoming.

The presence of carbonate of lime in cold water is not very serious, but immediately it is heated to boiling point in a domestic hot water system the trouble begins.

It has already been shown that all our sources of water supply have been derived from the rainfall, and as such is soft water and may be pure or impure, according to the quality of the air through which it has passed. In falling through the air, however, it absorbs approximately 25 cubic centimeters of gases per litre, and 2 per cent of these are carbon dioxide or carbonic acid gas or Co_2. Assuming this rainfall reaches the earth with the above percentage and it percolates through a limestone or chalk strata, which is roughly 260 times richer in the gas than

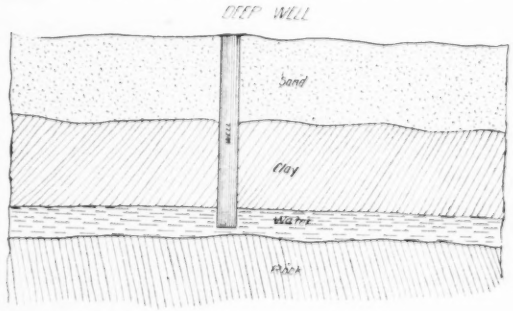


Fig. 3.

the air above it, a chemical change takes place and the carbonate is converted into a bi-carbonate which is soluble in water. Our rainfall carrying this soluble bi-carbonate forms the temporary hard water.

This, when heated to boiling point in a domestic hot water supply system, produces the lime deposit or incrusted deposit in the heater and circulating pipes between the heater and boiler, and if this is not removed periodically, no hot water will be forthcoming, for the lime, which forms a hard solid cake inside the heater, is a non-conductor of heat, consequently the transmission of heat from the fire to the water is greatly impeded. Further, when the pipes become partly stopped up, disagreeable cracking noises are heard throughout the entire system.

Just as soon as the water reaches the boiling point the Co_2 gas is liberated from the soluble bicarbonate, and the lime takes its original form. From this we learn the material, of which the heater and pipes are constructed,

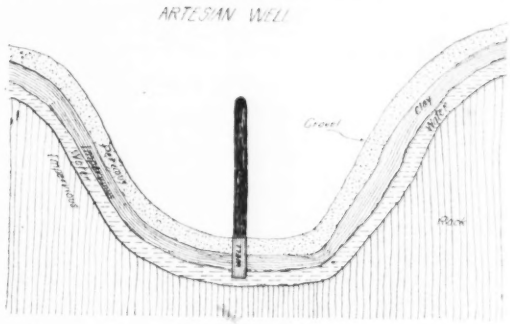


Fig. 4.

has nothing whatever to do with the deposit. Should platinum, gold or silver be used, lime will be deposited just as soon as it is liberated from the Co_2. Obviously, the quantity of carbonate in one heaterful of water can be ignored, but it must be remembered that the contents of the heater are changing many times daily, and with each change, a deposit occurs.

Permanently hard water does not precipitate the $CaSo_4$, but carries it in solution under all temperatures nor does it attack any metals.

Where We Get Our Supply.

Our supply is taken from one of the following sources Spring, deep wells, artesian wells, shallow wells, upland surface water, stored rain water, surface water from cultivated lands, river water, lake water.

Spring Water.

Two forms of springs are shown in Fig. 2. In the first type the rain water has percolated through the earth until it reached the impervious layer through which it cannot pass, such as rock, clay, etc., and then runs along this until it reaches the point, where the impervious layer reaches the surface of the soil. The second form is produced by a fault in the impervious strata, impeding the flow of water and holding it in the form of a pocket, which sometimes forces the water to the surface of the ground. Spring water is usually very good, but often contains inorganic matter in the form of mineral salts, which makes it objectionably hard.

Deep Well Water.

Deep wells are formed by boring through an impervious layer until water is found running along a second or lower impervious layer, through which the water cannot pass. See Fig. 3. Many country supplies are derived from this source, and it is considered an excellent water. However, like spring water it is invariably hard and often has a hardness of 50 degrees.

Artesian Well Water.

Fig. 4 shows the construction or formation of the well to be practically the same as the deep well, but in this case the water overflows and must be controlled at the mouth of the well. They are sunk in a valley or low-lying ground. The superior level, at which the water is received, causes it to find its own level by hydrostatic pressure, and were it not controlled, it would rise to a

(Continued on Page 355.)

QUESTIONS & ANSWERS

AN UNUSUAL HEATING INSTALLATION.

Editor "Domestic Engineering":—I am to install a heating system in a building, which is a little out of my ordinary routine, and I would therefore like to have your advice.

The building is a bakery, two stories high, arranged as indicated in the two accompanying sketches. The first floor has six bakery ovens, 10 by 15 feet. I do not know what degree of heat these ovens give off to the room, which is to be heated to 85 degrees. There is a steam room on this floor, which is to be heated to 100 degrees; and there is a 60-horsepower boiler to be used for low pressure. This boiler is on the same floor as the steam room, in which the piping must be on the floor, 8 feet below the water line.

I am planning to use an electric-driven automatic condensation pump and receiver for the condensation. Do you know of a better device for this purpose?

New Jersey. L. S.

The above request for information is a very interesting inquiry, as it touches upon many details not met with in ordinary steam heating practice.

The sketches submitted show the floor plans of a two-story building for use as a bakery. The first floor is shown by Fig. 1, and the second floor by Fig. 2. For convenient reference we have numbered the rooms on the second floor.

The requirements call for the heating of the bake shop on the first floor to 85 degrees and the hot room, or steam room shown in the center of the plan, to 100 degrees. The office and all other rooms on the second floor are to be heated to 70 degrees, with the exception of the room we have marked No. 5. This room is required to be warmed to 85 degrees. In the above statement the storage rooms on each floor are not considered, and, as correspondent does not state their size or exposure, it would not be possible to advise. They are to be warmed slightly above the freezing point.

Considering the bake shop, it is a hard matter to estimate the volume of heat that will be radiated from the ovens. If the face of the ovens extend to the ceiling of the room they will radiate very little warmth to the room. If there is a space above them opening into the room a considerable amount of heat will be available for heating the room. In the former case about 800 square feet of radiation will be required to warm the room to 85 degrees, and in the latter case probably 500 square feet will suffice in zero weather. On this basis an allowance of heat equal to that from 300 square feet of radiation is made, or 50 square feet for each oven.

The hot room, to be heated to 100 degrees, will require but very little extra heating surface. The temperature difference between the air of the room and 100 degrees is but 15 degrees, and all sides and the top of the hot room are surrounded by air at 85 degrees. A pipe coil composed of 50 or 60 lineal feet of 1¼-inch pipe will give off the additional heat required to keep this room at 100 degrees.

We call the attention of correspondent to the fact that the air of this room should be kept in a humid state. In some of the modern bakeries this is accomplished by the use of what is called a vapor pan. A steam pipe is passed through a large pipe, possibly six or eight feet long, which is partially filled with water which the steam pipe heats to the boiling point, and the vapor from this heated water is admitted to the room through small pipes extending upward through the floor of the room, the vapor pan, or pipe, being located beneath the floor. These

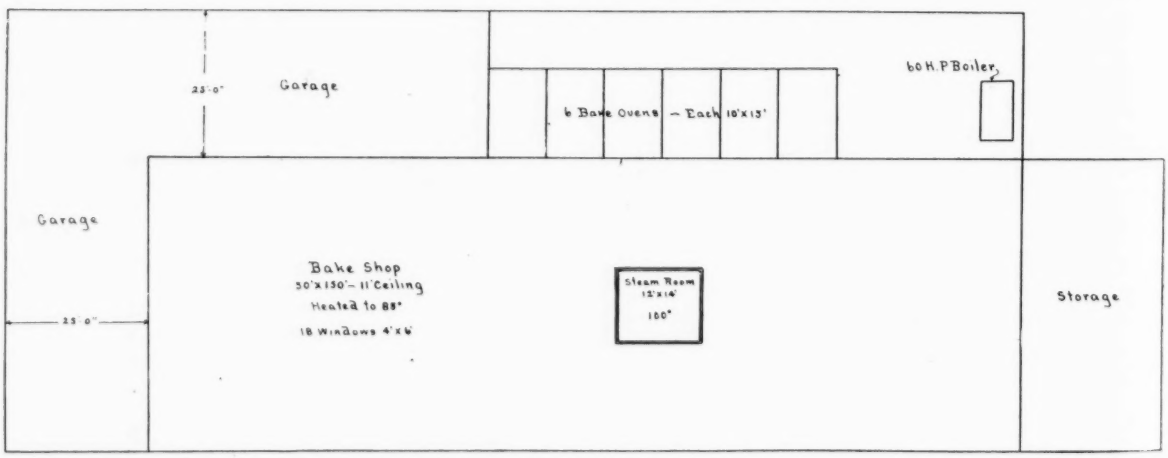


Fig. 1.

pipes are capped and several ⅛-inch holes are drilled through the top of each cap. Fig. 3 shows a plan of this method, and from the illustration a very good idea may be had of the apparatus. If there is no space under the floor of the hot room available for the purpose, a pit may be provided in which it can be placed. Very little vapor is required to keep the air of the room humid. A float valve, or other device, should be used to keep the water in the large pipe at a level just sufficient to cover the steam pipe passing through it in order to more readily boil the water and also to provide a space for the vapor.

The following radiation is required to warm the rooms on the second floor. Office, 110 square feet. Room No. 1, 125 square feet. Room No. 2, 80 square feet. Room No. 3, 115 square feet. Room No. 4, 275 square feet. Hall, 30 square feet. Room No. 5, 425 square feet. This makes a total for the floor (exclusive of the storage room) of 1,160 square feet. With reference to Room No. 5, correspondent notes, on the sketch submitted, that there is no ceiling to the room. It is open to the roof which is covered with 2-inch plank and 5-ply roofing paper.

We suggest an overhead system of piping for this job. The riser from the boiler can be taken to a point near the ceiling of the second floor, and from this point (which will be the high point of the system) a main can be started, which will extend around the ceiling with a slight drop to the point, where the last radiator or coil is supplied. If the conditions of the work will not allow of this plan being used, the main can be hung from the ceiling of the first floor, and the radiators on the second floor can then be supplied as for the one-pipe system.

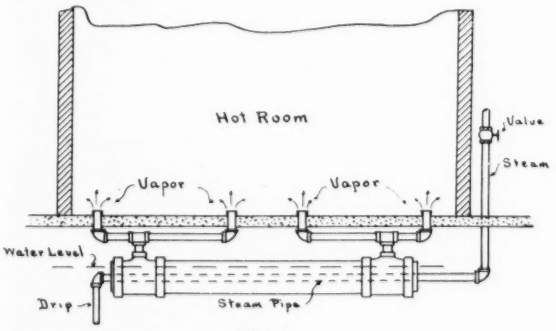


Fig. 3.

The idea of using an automatic electric condensation pump and receiver for returning the water of condensation to the boiler is a good one, provided the condensation can drain by gravity to the receiver. If any lifting of the condensation is required a vacuum pump should be employed.

The arrangement of the vapor device should be shaped to conform with existing conditions. It can be constructed of common fittings and pipe. The outlets into the hot room can be placed through the floor in positions, which will not interfere with the proper handling of the trucks on which the bread is placed.

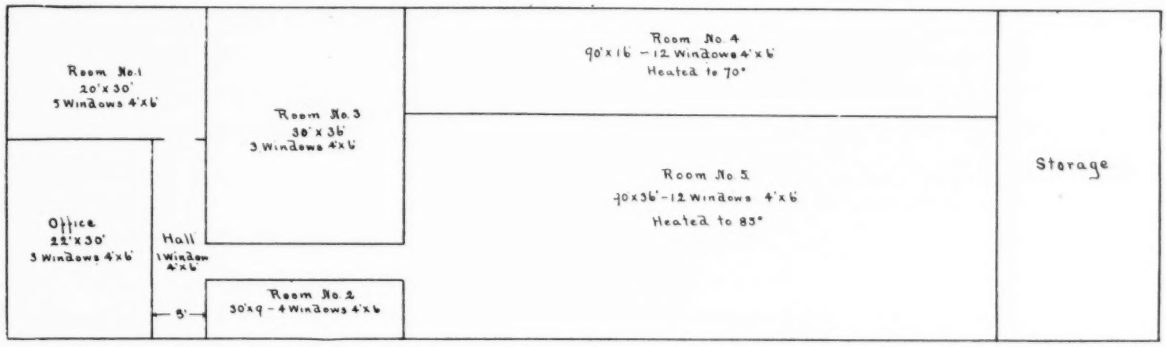


Fig. 2.

BENDING LEAD WASTE PIPE WITH SAND.

Editor "Domestic Engineering":—I was interested in the articles relating to making a lead grease trap, which appeared in recent issues of "Domestic Engineering," and while I believe it usually pays one to buy grease traps already made, I firmly believe plumbers should be qualified to make them, or anything else in the sheet or pipe-lead line, if called upon to do so.

One of the points, which interested me most, is bending lead pipe with sand. We use springs mostly in our part of the country, greasing them well, as the author recommends, but I would like to know more about sand-bending, in case we may encounter work where springs cannot be obtained, or impractical, such as in pipes larger than the springs.

Will Mr. Gordon favor me with information on this point?

Michigan. J. L.

In accordance with correspondent's request, we referred the above letter to Robert J. Gordon, and his answer follows herewith in full:

I am glad Mr. J. L. is interested in lead work, and shall be pleased to tell him something more about it. He wishes to know about sand-bending, so we will concentrate on that point.

Sand-bending is a process of bending lead pipes by first filling them with sand, then bending to the proper shapes.

The sand is used to prevent the sides of bends from collapsing while being bent.

Lead water piping is bent without sand because the diameter of the bore is small compared with the thickness of the metal. Fig. 1 shows the relative difference in thickness and diameter between three-quarter inch lead water pipe A and 2-inch lead waste pipe B. This water pipe can be bent over the knee and its bend will appear like Fig. 2A. It will have a practically full bore all through the bend. The walls are too thick and too strong to collapse by the operation.

It is different, however, with bends on waste pipes,

which are much thinner in the wall than water pipes, and do collapse, if bent over the knee without some kind of an interior re-enforcement.

Fig. 2 shows at B how a lead waste pipe will collapse, if bent without re-enforcement.

In Fig. 2, at A, the water pipe has kept its bore practically round, but the metal in the outer curve is thinned somewhat in stretching.

In making a bend, there is a compression of the mole-

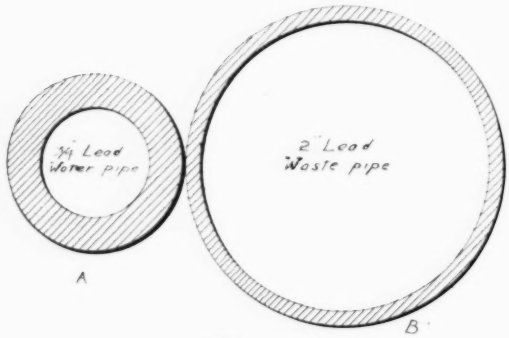


Fig. 1.

cules of the lead in the inner curve of the bend, which tends to thicken the metal here. The contrary effect is felt at the outside curve. This is subject to tension, which thins the metal a little.

In Fig. 2, at B, however, there is no stretching of metal at the outer curve. It has simply bent as a piece of sheet lead would be bent. That is because the metal forming the inner curve of the bend has not resisted the compression, but has yielded and collapsed, almost entirely closing the bore.

To prevent this collapsing, therefore, is the duty of the sand, spring, or whatever may be used. The sand really becomes a flexible brace or bolster, which resists the tendency to collapse, and incidentally compels the metal of the outer curve to stretch, and the inner curve, perhaps, to thicken slightly during the bending operation.

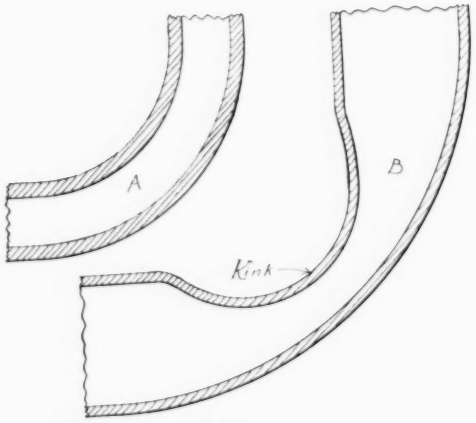


Fig. 2.

The shorter and sharper the bend, the thinner will the outer curve become. Therefore it is wise to make lead bends as large in the sweep as possible.

Fig. 3 shows an improperly made lead bend on 2-inch waste pipe. It is too sharp and the metal is stretched too thin. If this bend were made with a long sweep, the metal at outer curve would have been thicker.

Of course, some expert plumbers can make short, sharp bends with reasonably thick outer curve walls.

Some of them manipulate the metal around to the outer curve, or heel, with a dresser. Others apply heat at the inner curve to soften the metal there and cause it to thicken. At the same time they chill the outer curve to strengthen the metal there.

If the proper temperatures are secured, and the pipe is bent before temperatures equalize, the results are very

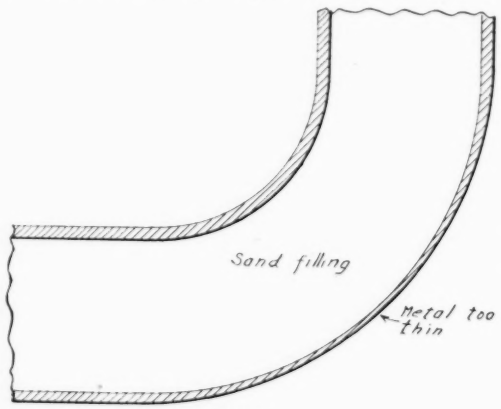


Fig. 3.

satisfactory. It may be done this way: Fill the pipe with dry sand. Pack the sand firmly into pipe till it will pack no more. Plug both ends tight. Apply a gentle torch flame to the part, which is intended to form inner curve of bend. Heat this part till it sizzles, but be careful not to melt it. With a wet cloth chill the part, which is intended to form the heel of the bend. Then quickly bend the pipe, having the heated part against a pad over the knee or in the hand, whichever way you may desire to bend the pipe up.

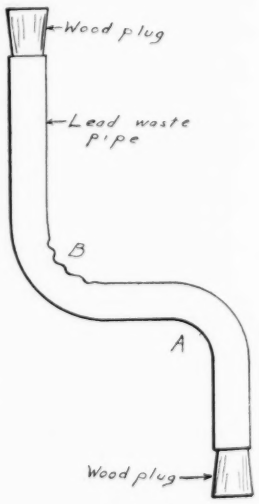


Fig. 4.

If you do not manage to bend it fully to the desired curve, before the heel becomes heated, then re-heat the inner curve, re-chill the heel, and bend again.

The result of this process is usually a good, thick, strong heel.

In packing sand into the pipe before bending, too much care cannot be taken. If the sand is not tightly packed, or if the wood plugs, which are generally used to close the ends, are not driven tightly against the sand, the inner curve of bend will kink, or bend will otherwise flatten a little.

Fig. 4 shows an offset made in a piece of lead waste pipe by the sand-bending process. One of the bends is shown correctly made at A. The other is incorrectly made at B.

The bend A shows good sand packing and uniform bending. That at B shows the result of imperfect sand packing. The sand here was packed too loose, or the wood plug at end of pipe has yielded and allowed a displacement of the sand.

LEGAL QUESTIONNAIRE

*What Are My Rights Regarding the Use of Family Name in Title of Corporation? — Can Another Corporation Sue Me for Infringement?**

By "The Judge"

Right to Use Family Name in Title of Corporation, when There Is No Intention to Deceive Public—The Rights of Another Corporation of Same Name.

Editor "Domestic Engineering":—When my business was incorporated recently, we had to go to the State House and find out from the corporations commissioner whether the name we had chosen for the new company was in use. There was one corporation with a name, which we will say was "The Jones Contracting Company," but the state authorities after consideration, permitted us to incorporate as the "Jones Company."

We have advertised freely in the various trade papers, and a short time ago the Jones Contracting Company wrote us that they considered we had infringed upon their name and were seeking to benefit by the reputation, which had been built up around the name "The Jones Contracting Company." We answered that we had the permission of the corporations commissioner to use the name we had selected, that we did not consider that we had infringed upon the rights of the older company, and that we had selected our name because the member of the firm whose name was "Jones" was well known in our line of business, before we had incorporated, and not because of a desire to benefit by anybody else's reputation. I might add that our two corporations do a different business.

Under the circumstances I believe that we have a right to do business under the name we have picked out. Am I right? G. J. L.

Answer—Unless facts exist, which you do not mention, there is not much question but that you have a perfect right to the use of the name which you have chosen. You are not engaged in the same business as the firm, which has made the complaint; from the fact that your corporation was formed recently, there can hardly be an allegation that you have damaged the business of the other firm; and it is scarcely probable that the public would be led to believe that your firm is in reality the other firm, as you are engaged in different lines of business.

As there is thus no question of unfair competition raised by the use of the word "Jones," the right of the other firm to restrain your use of that name depends upon the statute in your state, which reads as follows: "A person who carries on business in this state shall not assume or continue to use in his business the name..... of any other person, either alone, or in connection with any other name or designation without the consent in writing of such person or his legal representatives."

It is plain, I think, that the name of the "Jones Contracting Company" cannot be separated into component parts and remain the same name that was conferred upon it by the state when it was incorporated. The right which is restricted by the above-quoted statute is materially different from the right in equity to enjoin the use of something less than the entire name of a corporation, when such a use is proven to be misleading and calculated to deceive the public to the harm to the business of a corporation. It would undoubtedly be held in your case that the name "Jones" was not the name of the other firm, which has complained to the extent, at any rate, that it can prevent your using that word in a different arrangement.

Litigation over the use of trade names usually takes the form of allegations that one firm is using said firm's name and placing on the market under that name some articles which have, either because of extensive advertising or long years of use by the general public, become well known under a particular name. Yours is a somewhat different case from that, for, as I understand the case, you are not placing on the market an article which, if you are allowed to use the name you have incorporated under, will deceive the public into believing that they are buying something else. You are simply seeking to use the personal name, without initials, of a member of the firm, and in a different arrangement from that in which the name of the other firm has become widely known.

It has been frequently said by the courts that the name of an individual may constitute a valid trade mark. But if that statement means anything more than that personal names, even one's own, may not be used as a means of passing off one man's goods as the goods of another, which would be redressed as unfair competition, such statements are inaccurate. The mere name of an individual cannot become valid as a technical trade mark, because, as between persons of the same or similar names, each has the right to the use of his own name in his own business. A personal name in combination with other words or devices may, however, constitute a good trade mark. Some courts have said that the name of a corporation is its valid trade mark; but this cannot be made to square with the more widely accepted definitions of a trade mark, and corporate names are more accurately described as trade names, which will be protected against improper use or imitation under the doctrine of unfair competition.

If two men have the same name and they are used, either alone or in connection with other words, as in a partnership or corporation, the necessary and incidental inconvenience or loss thereby occasioned to one of the two, is what is known as a wrong without a remedy, and so it is held that relationship to the original user of a personal name which has won for itself a value in public opinion, confers no rights to such a relative in such a name in

*Every Effort is made to the End that these Answers may be authoritative. However, we cannot assume any Responsibility because of the very Nature of the Service, which is rendered without a personal Interview.—Editor.

any way different or greater than the right of a total stranger bearing the same name.

This right to use a personal name, however, is always subject to the general rules regarding unfair competition. A man must use his own name honestly and not as a means of pirating upon the good-will and reputation of a rival by passing off his goods or business as the goods or business of his rival, who has given the name its reputation and value. No one will be permitted to use even his own name with the fraudulent intention of appropriating the good-will of a business established and built up by a person of the same name. While the use of one's own name cannot be absolutely enjoined, nevertheless the manner of using it may be regulated by injunction. In your case, this would mean that while perhaps you could not be enjoined from using the name you have picked out, you might be enjoined from putting on the market some article in a wrapper similar to that of a competitor in the same line of business. No device or artifice, such as an imitative dress of goods or an inconspicuous size of type, misleading advertisements, etc., will be permitted, which will facilitate or increase the deception caused by similarity of names.

The name of a person may acquire a secondary meaning, as when we see the name "Minard" we think of liniment, and may become so associated with a man's goods or business that another person of the same or a similar name subsequently engaging in the same business will not be allowed to use even his own name without affirmatively and clearly distinguishing his goods and business. In such a case the mere use of the similar name, unaccompanied by affirmative and positive distinguishing statements or dress, is equivalent to an artifice calculated to deceive and is ground for the issuance of an injunction preventing such use.

As business is developed in volume and scope in this country, and as each day brings one end of the country nearer to the other, the law of unfair competition grows stricter and stricter. Commissioners of corporations of a state, in permitting the use of names by new corporations, must take into account, as far as possible, the fact that a corporation organized in Maine may contemplate doing business in California and should not, therefore, be permitted to use the name of a foreign corporation, which has filed a certificate in the state granting the new corporation the right to a name.

Where it appears that a certain person has been taken into a business merely to afford an excuse for using his name in the corporate and firm title and that this fact will promote unfair competition with another firm of the same name, such corporate or firm name will be enjoined by the courts. A corporate name, made up from the family name of one of the organizers of the corporation, may not be used, if it results in passing off the new corporation's goods or business as those of a prior trader, especially where it appears that the name was adopted with that very end in view. This rule, as applied to your case, would not be in point, for you are not using the same name, but a variation of the name of the firm, which has made the complaint. To come within the above rule, the facts would have to be, say, that you wanted to use the name "The Jones Company," which was already in use in that same form by a competitor.

The use of a family name or personal name, as part of a corporate name, has been often enjoined upon the ground that, as corporate names are self-chosen, there was no need of selecting a confusing or deceptive name, and a distinction has been drawn between such cases and the case of an individual trading in his own name, which he must necessarily use. But this doctrine has been exploded of late, and it is now recognized that a person has an equal right to use his own name in connection with an incorporated business in one case, as in the other.

Corporate names have frequently been enjoined upon the general principles of trade marks and unfair competition, where they are sufficiently similar to the names in use by prior trades to produce confusion and injury. A corporate charter grants no immunity in the use of a deceptive name. That is, the fact, that for some reason the commissioner of corporations has granted you the right to use your name, will not prevent a firm whose name has been infringed, from securing an injunction against you, provided that your name is being used to promote unfair competition. Priority in adoption and use confers the superior right, if the rights conflict. A deceptive corporate name should be enjoined only for as long as the corporation deals in competitive goods. This is to be qualified by the statement that you probably could not secure the right to use a similar corporate name from the state officials, under the statutes, in the first place.

A foreign corporation, and by that is meant a corporation which has a chapter from another state, cannot restrain the use of a corporate name similar to its own, unless that name has become a trade mark or a trade name. Some states even go so far as to enjoin the use of a deceptive corporate name by a foreign corporation, at the instigation of a domestic corporation, but I do not believe that the courts of your state would go so far, unless your corporation was formed and given its name prior to the time that the foreign corporation secured its license to do business in your state.

To sum up: First, your corporation has not such a similar name in the eyes of the law that you have infringed upon the right of the other corporation; and, second, you are not engaged in a competitive business. These two points are so strongly in your favor that I should not worry about the rights of the complaining firm.

The DAY BOOK *of the* BON TON DE LUX PLUMBING & HEATING CO.

Jerry Dolan's Record of the Interesting Happenings of the Day

(Continued from Page 317 in the November 23rd Issue.)

November 23, 1918.

We put in an iron pipe sewer for a customer last week, and this morning he called up to say that there was an error in the bill. I asked him what it was, and he said that we had charged too much pipe and come to find out he thought that our charge for 50 feet of 6 inch soil pipe was meant for 50 lengths. I showed him where he was off and he promised to send a check. Never said a word about the price, although it was so high that I was almost afraid to make out the bill. Think of it, $1.50 per foot for soil pipe, six-inch extra heavy, single hub, and a few years ago we sold it for less than half of that.

November 24, 1918.

Sunday. A busy day. Three broken coils before dinner. Plugged the cold water supplies, and told them we would be back Monday. Why won't people have stops placed in the supply lines to the hot water tanks, and why don't plumbers show their customers the need of them?

November 25, 1918.

This has sure been a busy day. Had to put in those three coils and had a couple of houses to drain owing to the fact that they are without tenants, and then there

were several other orders that came over the wires. We went over to drain a four flat building near here, and the owner told us over the phone that, if we couldn't get in, we should call him up, and he would bring out a key. We called him up all right, but not to get a key. From the looks of that place, the kids must have pasted the Kaiser's picture on every window and then taken turns at them with bricks and stones and tin cans and similar knick-knacks. There wasn't a whole light of glass left in the place. And the plumbing. Every bibb was gone, every trap was gone, the linings had been ripped out of the closet tanks and the bath tubs, the closet bowls had been broken so as to get the spuds, in fact, everything in the line of brass, lead or copper was gone. We removed the meters, and turned off the water at the curb boxes, but that was all that we could do.

November 26, 1918.

Replacing stolen brass goods is profitable for the plumber all right, but it seems to me that we might advance our own interests by suggesting the following plan to our landlord friends. Have the plumber remove all bibbs and traps (that is, the brass ones), take them back to the office with him and pack away in a box. Then when the property is rented, they could be taken out and installed. While in storage, a fellow could utilize a few spare moments by fitting them out with new gaskets and packings or even stems and eccentrics, if needed. This would add a little to the cost, but most people are pretty much alike in one respect anyhow. They will spend a dime or a dollar mighty foolishly and never regret it, but if they drop a dime through a sidewalk grating, they'll spend six dollars' worth of time trying to recover it, and if anyone steals anything, it's a case of laying awake nights thinking about it. Certain collection concerns make wide use of the phrase "Some people don't like us," and this also is true in our case. Some people don't like us, when they get our bills, but there are times when we are as welcome as were Pershing and his Yanks in France.

November 27, 1918.

We met a funny fellow the other day. He wanted some faucets repaired and a new coil put in his heating boiler, and so Hank went out and did the job, and when he got through the lady of the house asked him, if he would please build a fire for her, and so Hank did that. Of course, it took him a little while, and when this fellow came in to pay the bill, he hollered like an Indian, because he was charged for that extra time. He said that Hank wasn't doing either plumbing or heating, just starting a fire, and he didn't think that we ought to charge anything for doing that. The total bill was $6.85, and as he had laid down a $10 bill, when he started talking, I just naturally nailed that and gave him the required amount of change and marked his bill "Paid" and said "Thank you." A few months ago, I might have argued the question, but what's the use.

November 28, 1918.

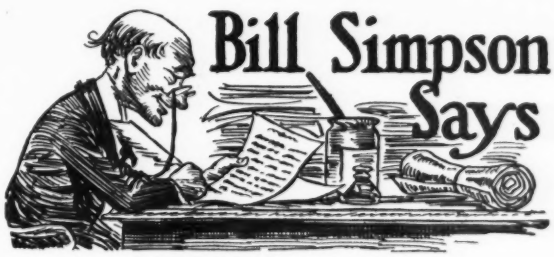
Thanksgiving Day, and the whole world surely has lots to be thankful for this day.

(To be Continued.)

Wanted to Help Both.

A little boy at school saw his teacher faint and fall. In the confusion it was impossible to keep so many heads cool, and the little ones flocked round the unconscious lady and her sympathetic colleagues. But this small boy kept both his color and his coolness.

Standing on a bench and raising his hand, he exclaimed: "Please, teacher, can I run and fetch father? He makes coffins."—"Pittsburgh Chronicle-Telegraph."



(With Apologies to K. C. B.)

I knew a fellow once,
* * *
Who bought six alarm clocks
* * *
And threw them all away,
* * *
Because they were "no good."
* * *
"They wouldn't get him up in
* * *
The Morning."
* * *
I knew another chap, who
* * *
Had ten different jobs
* * *
And gave them all up,
* * *
One after the other,
* * *
Because they were "no good"
* * *
"A fellow can't get rich
* * *
At those jobs in a life time"—
* * *
That's what he said.
* * *
Then, to compare with
* * *
These two friends of mine,
* * *
I want to tell you about
* * *
Another man I know.
* * *
He went to work as
* * *
Bookkeeper ($7 a week)
* * *
For a casket factory.
* * *
He just had one alarm clock,
* * *
And he stuck to one job.
* * *
Year in and year out he
* * *
"Slaved" away (that's what
* * *
His friend told him).
* * *
And the other day I
* * *
Dropped in to see him
* * *
And learned that he had just
* * *
Been elected President of
* * *
The concern. He also owns
* * *
About $50,000 of the stock,
* * *
Which pays 15 or 20 per cent.
* * *
MORAL? You bet!
* *
It's not the job or
* * *
The alarm clock—
* * *
It's Y-O-U!

WHO'S BOSS

The Plumbing Contractor Who Raised a Racket to Show That He Was the Boss

By William Robert Marshall

CARL HUNTINGTON and I were going up to Big Bear Lake for a week, for two reasons. First, we were going to prove that Carl could drive his "Sixty-six" to the rim of the world without stopping, to cool off, more than ten times. Secondly, we were going to show Jake Baker and Tim Hunter how to get the limit of trout without buying them.

Preliminary arrangements necessitated my presence at Carl's shop the afternoon of the day before our start. I found everything in a turmoil. Carl was all "het" up, storming around from shop to office, from loading a truck to the telephone. The little red-headed lady bookkeeper was all "fussed up" in an attempt to find an invoice, Carl had misplaced, which he said he had given her to file.

"The boss seems a little petulant this warm afternoon," I facetiously remarked to her, as Carl flew out in pursuit of the driver, who had forgotten a package.

"Crazy with the heat," she barked, her eyes flashing as she pulled out a file and spilled the contents upon the floor.

After I had helped to gather up the papers, I strolled out in the shop just in time to hear Carl bawling out the kid. "Why don't you watch those fitting bins, and report the 'shorts' instead of waiting until some one else discovers we are all out?" he was demanding of the kid in a threatening manner.

"Good heavens, have I got to watch every fitting bin in this place myself? Why don't you take an interest in your job and do something around here, besides drawing your breath and pay check?"

"*I did tell* Miss Murphy," the kid explained in self-defense.

"Tell her!" Carl barked. "Haven't I given you orders to *write down* the shorts and give them to her?"

"I did give it to her, written down. If she don't 'tend to it, 'taint my fault, is it?" The kid angrily responded to the "call down." Carl started back towards the office, and I tagged along.

"Miss Murphy, why didn't you order the fittings, Jimmie gave you a list of?" I heard him ask her angrily.

"Maybe you have forgotten, Mr. Huntington that you told me to put all 'short' slips on *your* desk, and that *you* would attend to them *yourself*," Miss Murphy sweetly, but vindictively replied.

"Suffering cats! I didn't mean little shop shorts. I meant the job shorts," Carl barked in disgust.

"You didn't explain," Miss Murphy was calmly explaining, when Carl waved his hand to me and called, "Come in."

We went into his office, and he banged the door.

"It beats the band how little interest any one around here takes in this place. By gosh, I have even got to see that the fitting bins are kept full. It frightens me to think of going away for even a week. I haven't got a soul around this place who gives a dam how things go, as long as they get their little measly pay check."

"Poor mechanics blame the tools," I laughingly but significantly, shot at him.

"Poor mechanics blame the ——, say Bill what are you doing, taking a shot at me?" Carl suddenly snapped, apparently getting the remark in just exactly the way I intended it.

I was busy lighting a cigar. Carl sat down in his office chair and mopped his brow.

"So you think it's *me* instead of the help, hey?" he finally asked in a more modest manner.

"Carl, old topper, a real boss never has to advertise the fact that he *is the boss*, everybody knows it intuitively. Whenever I see and hear a man raging and fussing with his employes, I always put it down in my memory book, that he is either a sick man and ought to be on a vacation, or he is as incompetent as his help, and the help are simply a reflection of the man's methods. Just think it over, did you ever see a 'crab' boss with anything but 'grab' employes?"

"Gosh, Bill, but you have no idea how aggravating that little red-headed bookkeeper can be when she wants to be. She knew what I *meant*, when I told her about those shortage orders, just as well as I did. Did she order that list of fittings? She did *not*. And when Joe just came in for some fittings, that Jones needs to finish roughing-in the Morton job—we haven't got them and Joe has got to go to the supply house to get them—two hours of his time with a truck and two hours of Jones's time waiting on the job. The other day it was the same thing. Peterson telephoned in for some ⅜-inch pipe for the Castle job, and she forgot it, but told me she ordered it just the same."

"I still maintain that the trouble is with Carl Huntington and *not* with the little red-headed bookkeeper," I replied.

"Ought to fire her, hey?"

"That's a sign of weakness."

"I'll bet you the price of the dinner, at San Bernardino, on the way up tomorrow, that I can give you an exact imitation of just how you told that bookkeeper to let you do the ordering of shorts, and a fairly good diagnosis of just how she took it and her determination of mind regarding the incident."

"Going to 'pull' some of that high-brow stuff?" Carl sneered.

"I laid you a bet," I insisted.

"How are you going to prove it?" he asked.

"By Miss Murphy, with your permission," I replied.

"Going to make a fool out of me before my help?" he began angrily.

"Wait a minute—old topper—you have told me a great many times that you didn't know what you would do without that little red-headed bookkeeper—she knows so much about your business, and all that line of talk. Very well, then it seems to me that it is up to you to place yourself in a position, where she will not only respect you *as the boss*, but will want to work *with you* instead of merely *for you*."

"Some of your fool notions about scientific—," he began.

"Some of my notions about good common business about something being ordered, which was not delivered. There was a question, whether it had been ordered or not, whether it was your fault or the fault of the jobbing house in not delivering it,—at any rate there *was a question* about it and Mr. Huntington settled it by telling you"—and I snapped out angrily, in as good an imitation as I could: "After this, put those 'short' slips on my desk, and *I'll* attend to them myself, and I'll know they are attended to."

Miss Murphy laughed merrily and Carl blushed, which was pretty good proof that I had made a good guess.

"Very well," was all she said, but that "very well" also meant: "You see you were wrong all the time, and I knew it."

sense," I interrupted. "Are you afraid of losing the bet?"

"I'm game," he stated after a few moments' contemplation, "and the bet rides."

"The bet rides," he agreed.

I stepped to the door and invited Miss Murphy to come in. She jabbed a pencil into her hair and with an air of belligerency accepted the invitation.

"Miss Murphy," I began, "Mr. Huntington and I have just made a bet, and we want you to decide who wins.

She eyed us both suspiciously.

"The other day he told you to put the shortage slips on his desk, and that he would attend to the ordering himself; now I am going to attempt to tell *why* he told you to do so and the *manner* in which he told you, and I want you to tell us if I am right or wrong."

They both laughed—but it wasn't a *real* laugh, it was an attempt to relieve an embarrassing situation.

"In the first place," I began, "there was *some* question

"That's just *the way* he spoke to me," Miss Murphy confessed.

"And now Miss Murphy I am going to ask that you make a little confession and help me win my bet—didn't you make up your mind right there and then to *'pass the buck!'* Didn't you say to yourself, I'll *let him order* every tack, from now on, and see how he likes it?"

"Well, wouldn't you if ——," she was blushingly trying to "alibi," and Carl was laughing.

"I guess I win, don't I, old topper?" I shot at Carl.

"I guess you do—and Miss Murphy I want to apologize—," Carl was stammering.

"By the way Mr. Huntington," the little red-headed lady interposed. "Jensen, the shipping clerk down at the City Supply Co., just telephoned and said that the ⅜-inch pipe, I ordered for the Castle job, had been delivered to the Carlton job by mistake—so you see *I did order it*——" She had started towards the door.

"You both win," Carl confessed demurely, "and Miss Murphy you take charge of ordering *all the shorts* yourself hereafter, and get after that kid outside, and see that he gives you the lists every day."

"Very well," was all she said, but that "very well" also meant: You see *you were wrong* all the time, and I knew it.

When she had gone, I simply remarked to Carl that the next time he felt like raising a racket, trying to impress his help that he was boss, to take a look in a mirror, and then correct the mistakes he found there, and he would be mightily surprised to find that most of other people's faults were simply a reflection of his own.

PREPAREDNESS IN THE PLUMBING AND HEATING TRADES.

By W. W. Hughes.

That period, for which we have all been longing, has finally arrived, and the suddenness of its arrival has taken us unawares, and we are very much unprepared.

In many of our cities, just before the war, there existed certain educational institutions catering to the various trades and crafts. With our entry into the war, our young men were taken away, some to be sailors and soldiers, and others to do their bit behind the lines. The result has been that our various plumbing and heating establishments have been without helpers for the greater part of the past two years.

At times, we have had to use laborers as helpers, and in certain extreme cases have had to detail two plumbers or two fitters to a job, as we could get neither helpers nor laborers.

But now a new condition confronts us. Thousands of men and boys have been released from pressing Government work and are available for industrial service.

Contracting plumbers and fitters should, without further delay, hire one or more young men, the number depending upon the number of mechanics employed, and put them to work as helpers. It is possible that the return upon the investment will be a loss for several months, but we must plan for the future.

In addition to the knowledge that they will acquire in their daily work, arrangements should be made to enroll every one of them in some good vocational school, either for part time or evening school study.

Many trades find the part time classes best. In carrying out this idea two boys are employed, one works a week while the other goes to school, with the result that the practical schooling of one week is augmented by the vocational instruction of the week following.

Then, again, we have a number of cities that can proudly boast of their vocational schools, and these schools usually have evening classes for young men seeking further knowledge of the trades.

And in still others, we find the boys taking correspondence courses, coupled with instruction given once or twice each week by some one fitted to do so.

And last, but not least, we have several correspondence schools that have very creditable courses for plumbers and fitters.

We have had a very expensive lesson in Unpreparedness, and, as everything indicates, the advent of an exceptional building boom in 1919, it is imperative that we profit by past experiences and be ready for the big business, when it comes.

In addition to a shortage of mechanics and helpers, there will be a shortage of competent office men. Our boys have gone across, some of them have met their death, others have been injured, and you may be certain that there are some who will either stay over there or will find new occupations upon their return.

There is no good reason why we cannot make use of some of the returning soldiers and sailors, who have suffered the loss of a foot or limb or other injuries, which will make impossible their return to their former trades.

In days gone by, it has been necessary for us to pick up boys, or men or young women, and place them in our offices, and then teach them enough of the rudiments of our game to make them competent to handle our affairs in some sort of a way.

But now we find that the returning soldiers are to be fitted for the various trades, particularly those who have suffered injuries, which are liable to be permanent. The master plumbers and jobbers in every community, that will be an instruction center for this kind of training, should arrange with some one of their number to give to those men, who want training that will fit them for plumbing office work, a short snappy course dealing with the problems that we encounter in our daily office work, short methods of keeping accounts and costs, rapid methods of deducting discounts, and ways and means of handling customers, having either real or imaginary kicks.

There is ample time to give this training between now and the time that we can expect work to open up in the spring, and it should be done.

Preparedness is as necessary in civil life as it is in army and navy training, and it is those who are best prepared who will reap the benefits of the boom times that are just ahead.

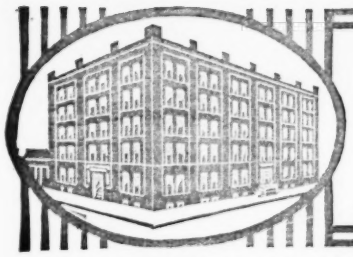
Wm. L. Eubanks.

Wm. L. Eubanks, who has been engaged in the plumbing business at 4713 Easton Avenue, St. Louis, Mo., since 1906, died at his home in that city on Tuesday, November 12th, after one week's illness of blood poisoning. Mr. Eubanks was born in Ohio 59 years ago. As a boy he moved to Mexico, Mo., and lived there for thirty years, coming to St. Louis in 1906, when he opened a plumbing business in that city. His wife and one son survive him.

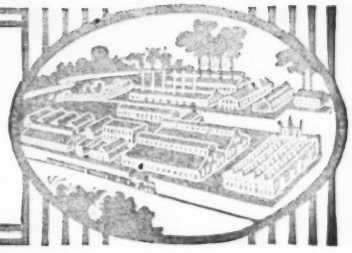
John J. Dooher.

John J. Dooher, senior member of the plumbing and heating firm of Dooher & Seager, of Niagara Falls, N. Y., died Tuesday night, November 19th, at his home in that city, of pneumonia, in his 46th year. Mr. Dooher was born in Toronto, Ont., but had lived nearly all his life in the United States. He learned the plumbing trade in Buffalo and came to Niagara Falls twenty-two years ago when he engaged in the plumbing business. For many years he served as chairman of the Municipal Plumbing Board in Niagara Falls, and he was also alderman in that city before the commission form of government was adopted. Mr. Dooher was a member of several fraternities, and he was also a very active member of the Niagara Falls Master Plumbers' Association. Three sons and two daughters survive him.

The war has given new impetus to the metallurgical industries of Sweden. The production of manganese ore is stated to have more than doubled. There has also been a great increase in the output, of nickel ore.



Among the Wholesalers and Manufacturers



ANNUAL MEETING OF NATIONAL ASSOCIATION OF BRASS MANUFACTURERS.

The annual meeting of the National Association of Brass Manufacturers will be held at the Hotel Astor, New York City, on December 11 and 12. One of the features of the meeting will be the election of officers for the ensuing year. The problems of reconstruction, as related to the brass interests in the plumbing and heating trades, will be discussed from various angles. The question of adopting standard hose thread will be taken up and thoroughly discussed. A report will be tendered by the committee on the allied industries in the plumbing supply lines, along with the report on the standardization sheets pertaining to brass goods, furnished by the Conservation Section of the War Industries Board. A report of the councils of the Chamber of Commerce of the United States, whose convention will be held on December 4, 5 and 6 at Atlantic City, N. J., will also be made. The delegates, appointed by the brass interests to confer with the delegates of the soil pipe, boiler, tubular goods, earthenware and enamelware lines at Atlantic City on December 3rd, will make their report. This latter conference will also consider the question of forming a united manufacturers' association in the plumbing and heating industry.

WALWORTH MFG. CO. BUYS HUNTER & DICKSON CO.'S BUSINESS.

Walworth Manufacturing Co., of Boston, Mass., has purchased the steam fitting supply business of Hunter & Dickson Co., 241-247 Arch Street, Philadelphia, and will continue it as a branch house.

WILL MANUFACTURE PLUMBING SPECIALTIES.

The Massachusetts Sprinkler, Power & Sanitary Engineering Co., of Boston, Mass., has just been incorporated with a capital of $50,000, to manufacture fire extinguishing systems and plumbing specialities. Patrick J Sullivan, formerly president of the Massachusetts State Association of Master Plumbers, is president of the new corporation, and the other incorporators are Louis S Kaufman and John S. Graham, both of Boston.

H. W. JOHNS-MANVILLE CO. BUYS BIG TRACT NEAR WAUKEGAN, ILL.

The H. W. Johns-Mansville Co., of New York City, has just purchased a tract of land, approximately 255 acres, north of and adjoining Waukegan, Ill., between the Chicago & North Western Railroad tracks and Lake Michigan. It is stated that this plot of land will be improved as soon as possible with a large plant which will cover about 1,250,000 square feet of floor space and will give employment to 2,500 to 5,000 people. This new plant will be a duplicate of the company's large plant at Manville, N. J., and it will be devoted largely to the manufacture of pipe and boiler covering, asbestos and magnesia products, etc.

BUILDING FACTORY ADDITION.

The J. C. Whitlam Manufacturing Co., of Wadsworth, O., is building an addition to its factory, 30 by 60 feet, two stories and basement. Part of this building will be used for offices and the balance for manufacturing and storage purposes.

ALL RESTRICTIONS ON CONSTRUCTION WORK REMOVED.

All the remaining restrictions on non-war construction throughout the United States were removed late last week. Building operations of any character, which were suspended by the war, may now be resumed without further permits.

Chairman Baruch, of the War Industries Board, announced that D. R. McLennan, chief of the Non-War Construction Section of the Board, telegraphed the order to chairmen of State Councils of Defense.

"The action taken permits all building operations of whatever character, held up in the interest of the war program, to proceed," the official announcement says. "No further permits will be required from the War Industries Board or the state councils, through whom control over the situation in each state was maintained.

"Since November 11th, with a view to assisting the industry back to a complete peace basis as quickly as possible, a careful canvass has been made of the conditions in each state with respect to building materials, transportation, and the supply of fuel and labor.

"In this investigation the Non-War Construction Section sought the views of the industry itself and of the State Councils of Defense. The replies received, coming from practically all the states, showed an unanimous opinion in favor of such action."

THE RECONSTRUCTION CONFERENCE AT ATLANTIC CITY, N. J.

Many phases of reconstruction will be taken up at the Reconstruction Conference of Industrial War Service Committees called by the Chamber of Commerce of the United States for December 3rd, 4th, 5th and 6th, at Atlantic City, N. J. The sudden termination of the war has brought reconstruction to the front as the one important problem today facing business men. In the congress of business interests at Atlantic City there is offered the opportunity for industry to assume the leadership in dealing with those questions which primarily affect business.

The program for the conference has not been completed, but enough of the details have been worked out to indicate the comprehensive way in which this conference will approach the problem of reconstruction. On

December 3rd, the first day of the conference, the 350 war service committees meeting separately will take up questions of special interest to their own industries. At these meetings there will be formulated the policies of the industries represented by the committees and resolutions which individual crafts desire to present during the conference.

For the purpose of facilitating discussion and co-ordinating the ideas of the various industries represented, the war service committees after meeting separately will gather together in 35 related groups. Afterwards these related groups will assemble as ten major groups representing the ten primary industries within the United States.

BARBER BURNER SALES CO. OPENS DISPLAY ROOMS.

The Barber Burner Sales Co., of Pittsburgh, Pa., has just opened display and demonstration rooms at 112 Fulton Building, in that city. This company, which was recently organized, will act as distributor in Pennsylvania, West Virginia and southeastern Ohio, for the products of the Cleveland Gas Burner & Appliance Co., of Cleveland, O. The officers of this new company are: President, Harry E. Kerr; vice-president, J. E. Trower; secretary and treasurer, Carl Devlin; general manager, Wayne Warden; directors: W. J. Schoenberger, Wm. J. Barber and Thos. J. Norton.

NEW BUILDING CONTRUCTION.

Among the contracts already awarded or under consideration during the past week, for various types of construction, as recorded by the "American Contractor," are the following:

Government Housing.

$1,500,000, ninety-five houses, Waterbury, Conn.

Government Housing Contemplated.

$1,000,000, one hundred ninety-two employes' houses, New Brunswick, N. J.

Other Government Contracts.

$121,600 group of buildings, Fort Monroe, Va.

$119,000 hospital buildings, Madison Barracks, New York.

$300,000 hospital (12 buildings), Pensacola, Fla.

$270,000 shops and industrial building, Galveston, Tex.

$100,000 ten magazine building, Yorkstown, Va.

State and Municipal Work.

$200,000 girls' trade school, Worcester, Mass.

$100,000 barracks, New York, College of City of New York.

$1,000,000 bank and office building, Wichita, Kansas, Kansas National Bank.

Railroad Construction.

$80,000 eight stall engine house and machine shop, Napoleon, Ohio, The Detroit, Toledo & Iron Railway Co.

Private Work.

$225,000 smokehouse and office building, Chicago, Hately Bros.

$100,000 gas producing plant, Connellsville, Pa., Capson Glass Co.

$1,500,000 power plant, Youngstown, O., The Shenango Railway & Light Co.

$200,000 brick and stone church, Chicago, Catholic Bishop of Chicago.

$100,000, twenty-five residences, Petroleum, O., Petroleum Iron Works.

$250,000 building, Zanesville, O., Y. M. C. A.

$1,500,000 corn products refining plant (addition), Argo, Ill., Corn Products Refining Co.

$250,000 building, Rock Island, Ill., Y. M. C. A.

$100,000 office building, Okmulgee, Okla., Stuart Mathews & Baker.

Contemplated Private Work.

$250,000 fertilizer plant, Chicago Union Stock Yards.

$100,000 beef killing building, Chicago.

$1,650,000 refrigerating building, Chicago.

$130,000 pork cutting and packing rooms, Chicago.

$175,000 welfare building, Chicago.

CO-OPERATION TO MAKE TRANSITION FROM WAR TO PEACE EASY.

C. B. Irish, of the Leader Iron Works, of Decatur, Ill., in commenting on the sudden transition from war conditions to peace, as it affects the plumbing and heating trade, writes: "For a year and a half our domestic needs have been neglected in the face of the greatest prosperity the consumer has ever known. Many needed improvements were deferred, and only the highly essential needs could be given any consideration. Now, we are suddenly thrown into the work of reorganizing domestic business quickly, so no time will be lost in opening up the old channels of trade. The ones, who wait to see how it is going to turn out, will be left so far behind that they will never know. The most urgent work right now is for every manufacturer, jobber and dealer to co-operate to secure business, even though it may not appear to exist. The combined efforts of the three, however, will soon have a healthy volume in full swing. The jobbers' salesmen will have important work in getting the dealer out after prospects. The dealer will have to warm up the consumer again, whose attention has been turned to other matters. The whole thing is just like starting a heavy freight train that has come to a stop, but it is a comparatively simple matter to keep going once it is in motion."

OVERCOMING OBJECTIONS TO TRADE ACCEPTANCES.

There are still some business men who do not thoroughly understand the use of Trade Acceptances, for they are constantly raising objections and citing conditions to this method of financing, most of which are easily overcome, if given the proper amount of attention. One business man recently complained that the Federal Reserve banks will not discount Trade Acceptances with a greater maturity discount than ninety days, while he extends a credit of from four to six months to his customers. This objection is easily overcome, and those, contemplating the use of the acceptance method, should definitely realize that the 90-day maturity period referred to by the Federal Reserve Board concerns only the maturity of the Acceptance, when presented for re-discount at a Federal Reserve Bank. However, there is no reason why the acceptance, before being presented for re-discount, cannot be held for a period by the discounting bank, and for another period by the drawer, who receives it from the acceptor.

Assuming that the seller receives from a customer an acceptance with a maturity of four months, his local bank will no doubt be glad to discount this acceptance immediately, and hold it for thirty days before having it re-discounted with the Federal Reserve Bank. Or even if the seller should hold this acceptance for thirty days be-

fore having it discounted, he would still be in a much better financial position than if he had this amount on his books in the form of an open account, upon which he could not realize funds when needed.

In other words, the acceptance method can be employed without in any way interfering with any sound and reasonable credit arrangements, which may be agreed upon by the seller of the merchandise and the acceptor of the acceptance. This also disposes of the objections to the use of the acceptance by some buyers on the ground that they pay only two or three times a year. But there is still another and much better argument on this point, brought out by a thorough investigation, which is that it has been found that such buyers, when employing the acceptance method, do pay more frequently than two or three times a year.

Another very striking fact is that the trade acceptances are almost invariably paid at maturity, and this in the face of the fact that frequently the man, who pays his acceptances promptly, will take liberties with the time limits concerned in his open book accounts.

One seller, who has been very successful in inducing his customers to pay for their purchases with trade acceptances, says: "This morning I sold an article costing $26.50 to a local customer. He asked me if I could let him have three or four weeks in which to pay. I told him I would, if he would sign a trade acceptance, which he did willingly, after having it explained to him. We all know what three or four weeks means to some people when paying for something which they know is absolutely good. They will procrastinate nine times out of ten, but not after signing a trade acceptance.

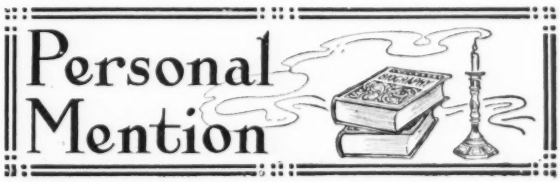
"In so far as the local banks are concerned, our banks here seem mighty glad to get hold of all these acceptances, and as yet have had no trouble in making collections. If all business men would get into the habit of using trade acceptances it would be a great benefit for business in general."

Another seller, who was asked for information concerning his experience with trade acceptances, made the following statement: "We have had mighty fine success with acceptances, for we find it is a very easy matter to get a customer to sign these when he finds that he doesn't have to pay interest. We make the customer feel that by giving trade acceptances he enhances his credit with us, and also helps us to extend credit to him. We always take plenty of time to explain the details to a customer, who has never before given one, and in this way it seems to bring him in closer relation to our store. We have used the acceptance with purchases as small as $3.50. We have now been using acceptances for over a year, and have not yet had to help the bank to make a single collection. The customers seem to pay the banks much more readily than they pay the dealer."

Too many dealers hesitate to employ the trade acceptance in their business, because they claim that "it will involve a reorganization of their present financial methods of doing business." As far as the seller is concerned it should be a welcome reorganization; for he receives the greater benefit when it is realized that he may have acceptances, which are readily convertible into cash, instead of open book accounts upon which he realizes nothing until the customer is finally persuaded to pay.

We are all familiar with the business man, who complains that collections are slow, that he must restrict his purchases because too much of his capital is tied up in book accounts. And in most instances it is this particular type of seller, who hesitates most in adopting a system that would place his business on a sound financial basis. It has been proved by specific instances in all parts of the country that, if the trade acceptance or any other meritorious new method is properly explained to customers, they will meet its requirements beyond doubt.

Of course, we can not expect to revolutionize our existing business methods without expending time and effort in doing it. But why not expend the time and effort required? The benefits will not only accrue to the individual, but will place all business throughout the country on a more desirable basis.



W. H. Wigman, president of the Wigman-Curtis Co., of Sioux City, Ia., recently visited the Chicago trade.

H. M. Reed, assistant general manager of factories of the Standard Sanitary Manufacturing Co., Pittsburgh, Pa., was in Chicago on Tuesday and Wednesday of this week.

A. J. Stone, vice-president of the Ernest Mehring Co., of Chicago, who is on a trip in central Illinois, writes that trade conditions are continually improving in that section of the state.

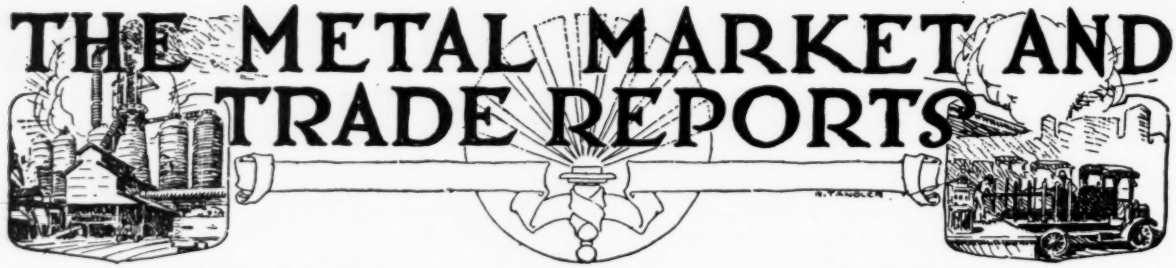
E. J. Claffey, president of the E. J. Claffey Co., and Chas. Glennon, president of the Glennon-Bielke Co., both of Chicago, have just returned from a week's vacation spent at Excelsior Springs, Mo.

J. B. Bernhard, manager of the boiler department of the Kanawha Mfg. Co., Charleston, W. Va., and in charge of its Chicago office, has recently returned from an eastern business trip. He states that business conditions in the East appear to be improving rapidly.

Captain M. M. Cochran, president of the Cochran-Sargent Co., of St. Paul, Minn., is an example of the real thing in patriotism. In order to expedite his arrival in France, he sacrificed his rank in the ordnance department, accepting a second lieutenancy in the light artillery. He gladly accepted demotion—anything for the privilege of being rushed "over there" before the big game was called off. Lieut. Cochran was ordered to Camp Zachary Taylor, preparatory to sailing. That was as far as he got. Alas how ironic the whims of Fate. "Der Tag" in the frenzied career of the Kaiser had arrived—and the good intentions of Lieut. Cochran were frustrated.

L. C. Huesmann, president of the Central Supply Co., of Indianapolis, is one of the busiest men in Indiana these days, being federal labor director in charge of the Indiana branch of the United States Employment Service. Preparations are now being made by the organization to absorb back into peace time pursuits all the men about to be released from military duty, and the job is one of great immensity. Mr. Huesmann, who is supervising the work, says the organization is preparing to take up the problem of readjustment in industry with a minimum of shock, lost motion or economic waste, due to enforced idleness either of shop or worker. This week a field force of five examiners began a survey of the cities and towns of the state, in which the Employment Service does not maintain a permanent office. These directors are to report at once to Mr. Huesmann the names of industries that are now on war work, whether their contracts have been curtailed and their plans for re-engaging in peace time pursuits.

THE METAL MARKET AND TRADE REPORTS



Steel and Iron.

Considerable progress was made last week toward restoring the steel industry to something like a normal basis. Restrictions on consuming industries and priority ratings have mostly been taken away, which opens up a large potential demand, which as yet has had little time to develop into concrete inquiries. A good demand for export is coming out, and automobile makers are buying fair amounts. There has, however, not been much business done in structural steel, but this is expected to improve shortly. No serious disturbance is expected because of the cancellation of war contracts, which is going on rapidly. Steps are being taken, since the signing of the armistice, to develop trade in foreign fields, as greater importance is now attached to export business by the steel trade than ever before because of the large increase in production during the war, which necessitates the marketing abroad of the surplus over domestic needs. The United States Steel Products Co. already provides an organization for foreign trade for the Steel Corporation, but other producers are not so favorably situated, and it is expected that a combination for export purposes will be made by the Lackawanna Steel Co., the Republic Iron & Steel Co., the Midvale Steel & Ordnance Co. and other concerns in Pennsylvania and the Middle West. Two factors are of the greatest importance in the development of the export business, viz., ability of American producers to compete with foreign manufacturers and the availability of shipping, which later may temporarily act to restrict development of the trade. For the present the attitude of the War Trade Board is also important, but licenses are reported to be granted more freely.

The iron market is quiet, but firm. Furnaces have sold most of their probable output during the first half of 1919, but these bookings will be affected by cancellations on Government allocations, where orders, for which steel makers have engaged iron, have been terminated. Just what this will amount to is not known as yet, but contracts in the iron trade generally do not provide for cancellation under the conditions that have arisen. However, it is to be expected that some adjustment will be made to relieve the situation. The waiting attitude of consumers is being dispelled by recognition of certain facts: First, furnaces are well sold up; second, a decline in prices is unlikely, as long as labor costs remain so high as they are at present; third, regulation and established prices are likely to continue after January 1st. More activity in pig iron is looked for by domestic consumers, and inquiry for moderate to heavy tonnages from foreign sources may be expected also.

Prices are based upon shipment from Pittsburgh, Birmingham or Buffalo. The base price on No. 2 foundry is $34, f. o. b., furnace, and standard Bessemer at $35.20, f. o. b., furnace, subject to the following changes from previous delivery prices: (a) Pig iron produced in Virginia, Tennessee and Birmingham districts and south of the Ohio and Potomac Rivers, including St. Louis, Mo., but not those furnaces bordering on the Ohio River shall be sold on the basis of f. o. b. Birmingham. (b) Iron from furnaces located east of the Allegheny Mountains and north of the Potomac River will be sold on the basis of f. o. b. Pittsburgh. (c) Iron from all other producing districts shall be sold on basis of f. o. b., furnace.

Copper.

Maximum established prices are being maintained, despite the fact that demand is light and inquiry at a low ebb. But an optimistic view of the outlook is prevalent, and no disposition is shown to shade the established levels in order to encourage sales. Consumers have covered their requirements for the immediate future and, not entirely convinced that cheaper copper may not be available after January 1st, are holding off in their purchases. On the other hand, producers look for a continuance of regulation and price control beyond the end of the year. They base their ideas upon the high cost of labor, and they also are confident that a large amount of copper will be needed for export. Established prices are 26 cents a pound for carload lots, and 27.30 cents for smaller amounts.

Tin.

The tin market is decidedly easier than for some time. Dealers have but little tin to offer, but consumers are offering resale lots in considerable volume, which in view of the scarcity of inquiry are enough to depress prices. The aggregate of transactions has been so small recently as to make the determination of quotations difficult, but nominally they range from 71 to 72 cents. The termination of hostilities has not brought with it as yet any relief of restrictions, which prevent the importers from bringing in tin as usual.

Lead.

New demand for lead for Government purposes is declining, and so far consumers of the metal for ordinary commercial purposes have not appeared to any considerable extent as buyers. Production is completely taken up in advance, however, and the absence of inquiry has not influenced the situation, which is no less firm than previously. No suggestion has been made as yet as to when control will be abandoned, distribution continuing under the Lead Committee. Prices remain at 8.05 cents a pound for New York delivery, and 7.75 cents at East St. Louis.

Spelter.

The spelter market was firm last week due to good inquiry and the scarcity of supply for prompt delivery. The outlook is much better than when last reported in these columns. Prices for Prime Western, New York delivery, spot and November were quoted at 8.50 and 8.70 cents; East St. Louis, 8.20 and 8.30 cents.

Other Metals.

Quotations on other metals in New York are as follows:

Aluminum (in 100-pound lots)	49 cents per lb
Antimony, Chinese and Japanese	16 cents per lb.
Solder, No. 1	49 cents per lb.

New York Old Metal Market.

The following prices are current for old metals:

	Buying.	Selling.
Copper, heavy	21 to 22 cents	23 cents
Copper, light	19 to 20 cents	21 cents
Brass, heavy	12 to 12½ cents	13½ cents
Brass, light	10 to 11 cents	12 cents
Brass turnings	12 to 12½ cents	13½ cents
Brass clippings	14½ to 15½ cents	16¼ cents
Tea lead	5 to 6 cents	7 cents
Aluminum clippings	28 to 29 cents	30 cents
Solder joints	13½ to 14 cents	15 cents
Tin foil, pure	42 to 46 cents	48 cents
Scrap zinc	5½ to 6 cents	7 cents
New zinc clips	6¼ to 6½ cents	7 cents
No. 1 pewter	50 to 55 cents	57 cents
Lead, heavy	7 to 7¼ cents	7½ cents
Cocks and faucets	16 to 17 cents	18 cents
Mixed babbitt	8 to 8¾ cents	9½ cents

Chicago Old Metal Market.

Chicago wholesale dealers' prices are nominally as follows:

	Buying.	Selling.
Heavy yellow brass	11½ to 12½ cents	13¼ cents
Brass, light	8½ to 9½ cents	10½ cents
Brass, medium	9½ to 10½ cents	11½ cents
Brass clippings	13 to 14 cents	15 cents
Red brass	18 to 19 cents	20 cents
Cocks and faucets	17 to 18 cents	19 cents
Copper, heavy	20 to 21 cents	22 cents
Lead, heavy	6¾ to 7 cents	7½ cents
Tea lead	5 to 5½ cents	6 cents
Lead dross	4½ to 5 cents	6 cents
Solder joints	13 to 14 cents	15 cents
Old iron pipe, per ton	$22.00	$23.00

The Pipe Market.

No changes were announced in the pipe market during the past week.

Quotations on less than car lots of full weight steel pipe remain as follows:

	Butt Weld Blk.	Butt Weld Galv.	Lap Weld Blk.	Lap Weld Galv.
⅛ to ⅜ inch	37	12	....	....
½ inch	40	27	....	....
¾ to 3 inch	43	31	....	....
2 inch	....	....	37	25
2½ to 6 inch	....	....	39	28
7 to 12 inch	....	....	37	25
12 to 14 inch	....	....	28	....
15 inch	....	....	25	....

The quotations apply to all shipments from stock, regardless of quantity.

On extra strong and double extra strong steel pipe in less than car lots, quotations are as follows:

	Extra Strong Plain Ends Butt Weld Blk.	Extra Strong Plain Ends Butt Weld Galv.	Extra Strong Plain Ends Lap Weld Blk.	Extra Strong Plain Ends Lap Weld Galv.	Double Extra Strong Plain Ends Butt Weld Blk.	Double Extra Strong Plain Ends Butt Weld Galv.	Double Extra Strong Plain Ends Lap Weld Blk.	Double Extra Strong Plain Ends Lap Weld Galv.
⅛, ¼ and ⅜ inch	33	17	....	....	....	....	....	....
½ inch	37	26	....	....	29	20	....	....
¾ to 1½ inch	41	30	....	....	32	23	....	....
2 to 2½ inch	42	31	....	....	34	25	....	....
3 inch	42	31	....	....	....	....	....	....
2 inch	....	....	35	25	....	....	27	19
2½ to 4 inch	....	....	37	27	....	....	29	21
4½ to 6 inch	....	....	36	26	....	....	28	20
7 to 8 inch	....	....	33	21	....	....	24	12
9 to 12 inch	....	....	28	16	....	....	....	....

With threads only, the basing discount is 1 and 1½ points lower. With threads and coupling the basing discount is 3 points lower. The quotations apply to all quantities less than car lots.

Quotations on full weight genuine iron pipe, in less than car lots, are as follows:

	Butt Weld Blk.	Butt Weld Galv.	Lap Weld Blk.	Lap Weld Galv.
⅛ and ¼ inch	14	+11	....	....
⅜ inch	15	+10	....	....
½ inch	19	2	....	....
¾ and 1 inch	24	9	....	....
1¼ inch	24	9	8	+7
1½ inch	24	9	16	3
2 inch	....	....	17	4
2½ to 6 inch	....	....	19	7
7 to 12 inch	....	....	16	4

These quotations are f. o. b. Pittsburgh, and apply to all shipments from stock, regardless of quantity.

On extra strong and double extra strong genuine wrought iron pipe, with plain ends, and in less than car lots, the quotations are as follows:

	Extra Strong Butt Weld Blk.	Extra Strong Butt Weld Galv.	Extra Strong Lap Weld Blk.	Extra Strong Lap Weld Galv.	Double Extra Strong Butt Weld Blk.	Double Extra Strong Butt Weld Galv.	Double Extra Strong Lap Weld Blk.	Double Extra Strong Lap Weld Galv.
⅛ to ⅜ inch	13	+ 3	....	....	....	....	....	....
½ inch	18	+ 6	....	....	6	+6	....	....
¾ and 1 inch	24	10	....	....	11	+1	....	....
1¼ inch	24	10	9	+6	11	+1	....	....
1½ inch	24	10	16	+3	11	+1	6	+6
2 inch	....	....	18	+6	....	....	6	+6
2½ to 4 inch	....	....	20	+9	....	....	8	+1
4½ to 6 inch	....	....	19	+8	....	....	7	+2
7 to 8 inch	....	....	11	List	....	....	....	....
9 to 12 inch	....	....	7	+5	....	....	....	....

These retail prices are f. o. b. Pittsburgh, and apply to all quantities except in car lots. With threads only, the basing discount is 1½ points lower. With threads and couplings, the basing discount is 3 points lower.

To ascertain the price in your city, deduct the proper less-than-carload freight rate from Pittsburgh to that city. Example: Base price on ¾-inch black steel pipe is 43 per cent, Pittsburgh, the less-than-carload rate to Patson is 17 cents, and the price, therefore, freight allowed to Patson, 41.3 per cent; on galvanized, 29.3 per cent. All other sizes to be figured on a comparative basis.

RECONSTRUCTION OF FRENCH IRON AND STEEL INDUSTRY.

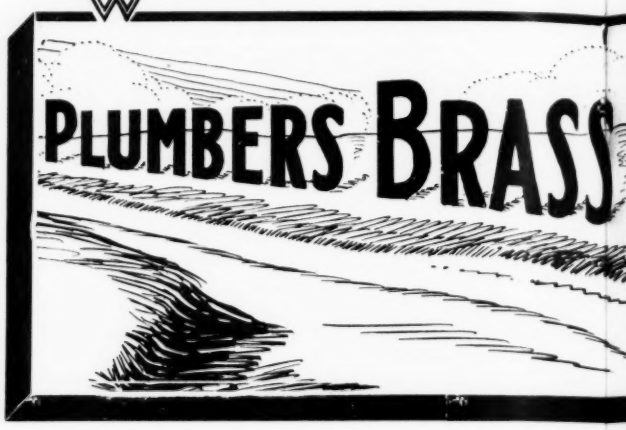
Under the name of "Société Corporative des Mines de fer et de la Sidérurgie des régions sinistrées" a company has recently been formed in France for the purpose of conducting commercial or industrial operations useful in bringing about the reconstruction and reorganization of the iron mines and steel works of the invaded regions, according to a report from United States Commercial Attaché Pierce C. Williams, Paris.

The company is affiliated with the Comptoir Central d'achats industriels pour les régions envahies, and has its offices with that organization at 40 rue du Colisée, Paris. The new company is practically a technical commission of the Comptoir Central. For convenience, however, a separate share company has been organized. Its capital stock of 1,000,000 francs, divided into 2,000 shares of 500 francs each, is held by iron mining and steel companies owning properties in the invaded regions of France.

The society is administered by a Conseil d'Administration (corresponding to the board of directors of an American corporation) composed of not less than 10 and not more than 25 members elected by the shareholders.

The new company is making estimates of the raw material and equipment that will be needed to restore the damaged iron mines and steel works in the northern and eastern part of France. Its methods is to gather the best information available regarding the extent to which iron mines, blast furnaces and steel works have been destroyed, and on the basis of this data prepare purchase programs covering the materials needed for replacement.

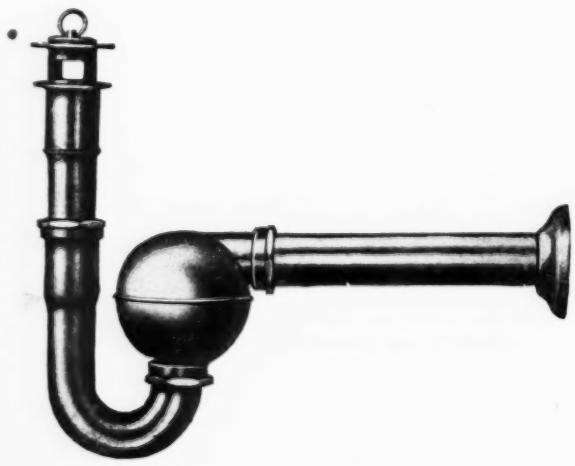
- WISECO -
TRADE MARK
EST. 1877 INC. 1912 INC.



W.S.S.
WAR SAVINGS STAMPS
ISSUED BY THE
UNITED STATES
GOVERNMENT

From Coast to Coast, in all classes of buildings, WISECO Plumbers' Brass Products are giving satisfa to the entire WISECO line—not any particular fixtu comes from our own mill, places us in a position to t gauges.

The SURE
Seamless Lav



is a WISECO product celebrated for its positive wate made from heavy drawn brass, is 3¼ inches in diame Can be removed if desired, by simply unscrewing two of fixture. The SURE SEAL is made as good as it i for any job, large or small.

Not the least important is the finish given each pi ping white nickel with which they are heavily plate attractive.

Plumbers who install WISECO goods have the s given their customers value received for the money e good-will.

J. B. WISE, Inc.,

Manufacturers of Plu

- WISECO -
TRADE MARK
EST. 1877 INC. INC. 1912

SS GOODS

ldings, from the palatial hotel to the modest bungalow,
satisfactory service year in and year out. This applies
lar fixture. The fact that our supply of raw materials
ion to turn out products of uniform quality and accurate

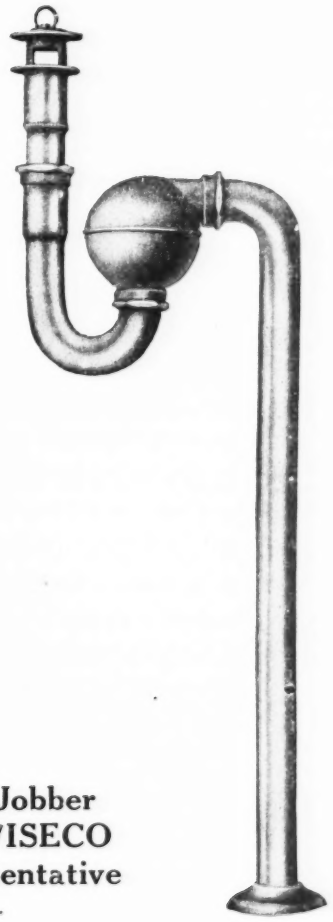
RE SEAL

Lavatory Trap

ve water seal under all conditions of service. The body,
diameter with smooth finish both inside and outside.
ng two body nuts. Not necessary to disturb other parts
as it is possible to make a trap. You can bank on it

each piece of WISECO goods. Our Special non-strip-
ly plated, is highly finished and is both lasting and

e the satisfaction of knowing that they have not only
oney expended, but have secured their confidence and



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Watertown, N.Y.

AMONG THE PLUMBING AND HEATING CONTRACTORS

Illinois

Chicago and Vicinity.

According to reports from architects and engineers, the total contemplated building activity for Chicago is divided approximately as follows: Industrial and office buildings, $128,033,000; apartment houses, hotels and residences, $1,929,000; institutional, church and municipal buildings, $14,085,000. This represents a grand total of $144,047,000. Here is an optimistic indication that the revival of construction work in and about the city will proceed with the characteritic "I Will" spirit of Chicago.

O'Callaghan Bros., of 157 North Market Street, will install the plumbing system in an addition to a corn products refining plant, to be erected at a cost of $1,500,000, at Argo. The heating contract was awarded to Brady & Co., of 125 Curtis Street.

E. M. Craig, secretary of the Building Construction Employers' Association of Chicago, in which various of the leading plumbing and heating contractors of the city are represented, in a recent statement pointed out the results of organization in Chicago from the viewpoint of the contractors. He said in part: "What Chicago has done is wonderful—almost, I might say, a reversal of conditions from what they were eight or ten years ago when they used to call strikes on us daily—four and five, six and ten, and even fifteen times a day. Now, as a usual thing, they call us up and tell us that the contractor is wrong and that they want to get him in and see if we can't make him right. The power of organization has been a wonderful thing in this city. The power of organization has helped us out of chaos into a condition not just exactly what we want today, but far better than it has ever been, and we all have to recognize that during this great war period, organization has been a leading factor in preserving harmony between employer and employe. Now that the reconstruction era is at hand, it is up to us not only to make the world safe for democracy, but to make the United States safe for the contractors."

The Jacob G. Weber Co., of 2841 North Clark Street, has recently been awarded the contract for the installation of a modern plumbing system in a storage building and paint shop, to be erected at a cost of $18,000, at 101st Street and Avenue H. The company also has the contract for the installation of the plumbing in a pump house to be built near the same site.

The Charles H. Law Plumbing & Heating Co., of 18 East Harrison Street, will install the plumbing system in a store, flat and office building, to be erected at a cost of $35,000, at 934-938 Forty-seventh Street.

The Thomas Conlin Heating & Plumbing Co., of 3970 Cottage Grove Avenue, has secured the contract to install heating and plumbing systems in a factory, to be built at a cost of $40,000, at 5660 West Taylor Street.

Baldwin & Glasson, of 208 North Wells Street, have been awarded the contract for the installation of a modern heating system in a store and apartment building, to be erected at 2524 West Fifty-ninth Street.

The Kohlbry-Howlett Co., of 111 West Washington Street, will install plumbing and heating systems in an addition to the aviation camp at the Great Lakes Naval Training Station, at Waukegan. The total cost of this construction work is estimated at $400,000.

William Lees, of 548 West Washington Street, has secured the contract to install the plumbing in a bungalow to be built at a cost of $9,000, at 356 Bonnie Brae Avenue River Forest.

Oregon

Portland and Vicinity.

The Coe A. McKenna Co., of this city, is preparing plans for the construction of forty houses on property in the Peninsula district.

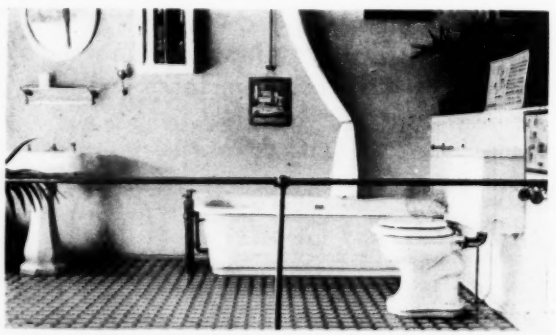
The Portland Housing Co. expects to have definite plans completed within a week or two for proceeding with the building program planned.

It is stated that the ending of the war will in no way change the imperative demands for increased housing facilities in Portland, and it is planned to start a vigorous campaign for new homes. The residence construction during the past ten months has by no means kept pace with the ever-increasing demand, and it is estimated that at least 2,000 new homes are urgently needed.

The Northwest Trust Co. has received permits to erect 100 new homes in the Peninsula district, for housing workers in the shipyards. It is understood the contract for the work will be let under one general contract, with separate bids for sub-contracts.

H. C. Kornegay, of this city, will construct seven new residences on East Forty-third Street, to cost about $3,000 each.

A. McMahon, Coquille, is constructing a two-story concrete and brick office building and apartment house. Contract for plumbing in the structure has been awarded to Lamb & Von Pegert.



The Show Window of Graber Bros., at Salem, Oregon.

Washington

Seattle and Vicinity.

The official news from Washington that the ban on new building has been lifted and that all restrictions have been removed, is music to the ears of the contractors and builders in Seattle, who predict that the city is now due for an era of big construction activity. Builders assert that all sorts of new structures, both large and small, have been awaiting official sanction, and the possibility of obtaining labor, both of which now seem at hand. The official closing of all camps and mills, engaged in production of airplane spruce on war orders, will release at least 10,000 men in the Northwest, who will gradually be absorbed by the various industries that have been short of labor for several years. The shortage of labor in building and construction trades of all kinds has been extremely marked, and has been a contributing factor to the comparatively light construction work. It is generally conceded that scores of building enterprises have been suspended on account of the shortage of men and the absorption by Government war needs of all materials available. With peace at hand, numerous non-war industries, that have been forced to become inoperative, will resume activities. Many of these industries shut-down has increased the difficulty in securing materials, and with their reopening the building business will be materially improved.

General business conditions in this city have been somewhat depressed by the influenza epidemic, which has raged here for about six weeks, and which resulted in a general ban on all places of public gathering. The epidemic made heavy inroads on workers in every industry. With the lifting of the ban, business has resumed normal activity.

The Board of Public Works, Seattle, has officially approved the plans of City Architect Daniel Huntington for the construction, by day labor, of a $10,000 concrete one-story internment hospital at the city stockade. The building will be equipped with modern plumbing and heating systems.

The Mutual Investment Co., of Central Building, Seattle, is having plans prepared by Architects E. J. Ivey and H. H. Riley for seven colonial residences to be built in the University Place Addition.

Seattle Engineering School will erect a three-story brick building in Seattle, covering an area of 250 by 120 feet. Architect Sherwood D. Ford, Lyon Building, is preparing the plans for the school building, which will cost $120,000. A modern heating plant will be installed.

One of the most important steps in the seven-million-dollar housing campaign in Seattle is the formation of the Second Mortgage Co. with $200,000, of which the entire amount has been subscribed. The company is organized to make small loans to citizens to help them in the building of homes.

The Puget Sound Bridge & Dredging Co., Seattle, plans the construction of twelve residences on Fifty-fifth Avenue Southwest, West Seattle, four of the houses to cost $4,000, and eight others to cost $3,000. The company will offer first tenantry to employes of its wooden shipbuilding plant. Work will start immediately, and it is expected that the new homes will be completed early in February.

Dr. John W. Wilkins, Cobb Building, Seattle, is having plans prepared by Architect J. R. Nevins for a three-story mill construction hospital with brick walls at Fifteenth Avenue and Johns Street. The structure will cover an area 72 by 34 feet, with a wing 34 by 62 feet, and will be heated by a vacuum heating system.

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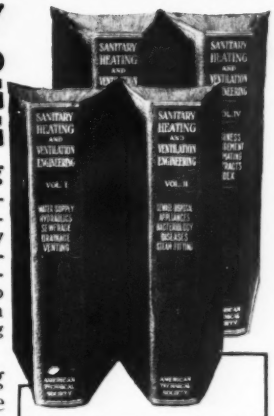

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Other Cities in the State.

The Y. M. C. A., in Pullman, plans the immediate construction of a $12,000 recreation building for the use of the S. A. T. C. A heating plant to cost about $2,500 will be installed. T. W. Ripley, Colfax, has been awarded the contract for the structure.

The Tood Shipbuilding & Drydock Co., Tacoma, has recently awarded the contract for seventeen residences for shipyard workers. This is to be the first unit of 100 bungalows, which will be erected on South Fife Street, at a cost of $100,000. Of the structures for which contracts have just been let, two will cost $3,500, five will cost $3,000, and the balance $2,500. Modern plumbing will be installed, and some of the houses will have furnace heat.

Home building in Tacoma took another big jump in the month of October, the total value of permits amounting to $249,313. As compared with the 113 permits, valued at $88,815 for the same month in 1917, the October record is almost three times as great. Of this amount, $176,000 covered 111 residences and about an equal number of buildings were classed as sheds and garages, many of which are intended as temporary homes. The ten months of 1918 have rolled up a building record that will completely outstrip the year of 1917, and will exceed all previous records as far back as 1909. With the lifting of building restrictions, it is predicted that building in the city will show even greater activity.

J. B. Moncur, a well-known plumbing contractor of Everett, has purchased the Hotel West on Hoyt Avenue, near California Street, for the sum of $12,000. The structure is a three-story frame building, the first floor being divided into stores. Mr. Moncur will make a number of improvements, including changes in the plumbing and heating systems.

The Bremerton City Council is considering a Government appeal that the present plumbing ordinance be changed so as to permit of the use of certain specified plumbing supplies on the Government housing project. It is pointed out that this technical objection, because of the ordinance, may result in a serious delay in completing the houses on which construction has been started.

The city of Centralia during October experienced a very satisfactory run of building work. A number of new residences, and a $25,000 hospital comprised the greater part of the building.

Plans have been drawn for a $500,000 Government hospital at Puget Sound.

Georgia

Atlanta and Vicinity.

Walker Electric & Plumbing Co. is installing the plumbing systems in the ten-story Transportation Building, in this city.

Gresham & Jackson are remodeling the plumbing and heating systems in the Ansley Hotel.

Heer & Jackson have the contract for the heating in six hostess houses in Louisville, Ky., and Camp Knox.

Independent Plumbing Co. has moved from 40 to 42 South Pryor Street.

J. B. Bowen has moved his plumbing business from 3 Peters Street to 154 Whitehall Street.

Belcher Heating & Plumbing Co. is remodeling the plumbing, heating and ventilating systems in the Grand Opera House. The contract amounts to $24,000.

Decatur Plumbing Co., of Decatur has the contract for the plumbing in the barracks building at Oglethorpe's University in DeKalb County.

California

San Francisco and Vicinity.

The Spanish Influenza is now practically a thing of the past. The masks have been dropped, the movies, the schools and the churches have been opened, and the plumbers are again doing their work. Moreover, a good soaking rain has visited the entire Pacific Coast, calling for an unusual lot of jobbing and repair work after the long dry season. Many of the San Francisco shops report quite a bit of small work of various sorts, and the general outlook is for a considerable amount of winter work from now till the opening of the new year.

The coming of peace is very welcome in the trade; though, as yet, things are still in a waiting condition. Probably, there are now fewer men employed in the plumbing and in other metal lines than there were when the armistice was signed. The big shipyards are easing off more or less, and other strictly war work has dropped away, now that the war is over. However, the dropping of building restrictions is certain to result in a building boom of no small proportions, as soon as things get under way. A lot of building, that has been delayed for the past year and a half, will be started just as soon as things can be gotten in shape for the calling for bids and letting of contracts. Other jobs will be delayed until after the close of winter promises good weather, and still others will hang fire until the Government gets around to ease up on the financing of non-war enterprises. It is not thought that the necessity for further Liberty Loans next year will be deemed sufficient cause for the holding up of the financing of private enterprises.

The labor situation is not altogether settled, though the curtailing of shipbuilding and other war work has released a good many men. The early return to industry of the four million men in Uncle Sam's service will be necessary before the labor situation can get back to normal, if, in fact, the pre-war conditions are ever approximated in labor matters. However, the trade is prepared to go ahead energetically with whatever materials, human and other, are to be had.

About $80,000 will be spent by the proprietors of the Techau Tavern in alterations of the St. Francis Theater property for restaurant purposes. The latest in cooking and heating conveniences will be installed.

Barrett & Hilp, Sharon Building, have been awarded a contract for the plumbing in Pier 42 on the Embarcadero, on the San Francisco water front.

Mangrum & Otter, Inc., 827 Mission Street, have been awarded a contract for the heating and ventilating of the Lucile Smith Building at the corner of Sutter and Mason Streets. Consideration $1,840.

Other Cities in the State.

E. L. Potter, a hotel man in Los Angeles, immediately following the signing of the armistice, announced the completion of plans for the erection of a new hotel at a cost of approximately $3,000,000. The location will be announced very shortly and the preliminary contracts let before Mr. Potter leaves for the East to make further plans.

The Los Angeles City Council has adopted an ordinance amending the code regulating the installation of plumbing and house drainage and the installation of gas piping and fittings in that city.

The Y. M. C. A. has completed plans for the erection of an eight-room school building and a recreation build-

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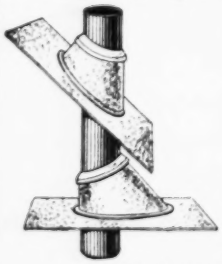

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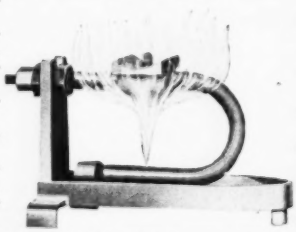

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ing in the San Pedro section, the total cost being approximately $20,000. Both buildings will be for the benefit of workers in the San Pedro shipyards.

The Long Beach Chamber of Commerce will erect a club room building on East Ocean Avenue, at a cost of about $30,000.

W. S. Goodrich, of Los Angeles, was the successful bidder for the steam heating in the new city hall at El Segundo.

The Thomas Haverty Co., of Los Angeles, will do the plumbing in the new tank repair shop to be built on East Fourth Street, for the Salt Lake Railway.

Housing Conditions at the Los Angeles Harbor.

The housing survey at San Pedro has just been completed and shows conclusively the need of more houses for employes at the shipyards. A total of 2,468 houses were included in the survey, and only twelve of these are vacant. As a result of a plea made to householders 110 rooms have been offered to shipyard workers, and a few vacant apartments were found.

A summary of the survey was telegraphed to Mark C. Cohn, Pacific Coast field agent of the Housing Bureau of the Department of Labor, at whose suggestion the survey was made. The report has not yet been presented, however, to the United States Homes Registration Committee, in whose hands the housing question has been placed for determination of the needs in the harbor district. In the meantime the construction of new houses is limited to the completion of houses, which had been started before the issuance of the order regulating non-war construction.

No further information regarding the new housing regulations reported to have been adopted at Washington has been received and developments are awaited.

Tennessee

Memphis and Vicinity.

The plumbers at Memphis, Nashville and other cities of Tennessee are pleased at the announcement of the removal of all building restrictions. With the winter season near at home, not a great deal of new work will be done, but it will be systematically planned for the coming year. Municipal, state, federal buildings, school houses, hospitals, warehouses, stores, residences, farm houses and plantation construction can now go forward.

The plumbing and heating firms are doing a good deal of repair work incident to the season and most of them are busy.

Fred Pritchard, of Pritchard Bros. of Madison Avenue, has returned from Hardy, Ark., where he spent several weeks in camp with the boy scouts.

Memphis has a new plumbing inspector in the person of Dan McGrath, named a few days ago by the city commission to succeed M. H. Loring who resigned.

The Memphis Master Plumbers' Association now meets twice a month. W. W. Cronin, of Cronin, Baker & Tindall, is again president, succeeding Ed. Wilhelm. The meetings are held at 73 Madison Avenue. A. J. Howe, of 1685 Lawrence Avenue, was recently elected secretary of the Association to succeed Jas. L. Evans, who went to France.

Since Jas. L. Evans went abroad, in the Y. M. C. A. work, his location at 277 Madison Avenue has been occupied by the McGowan Plumbing Co. Ed. McGowan is also in service at Fort McIntosh, Texas, but S. W. Loring runs the business and is very active, both in plumbing and electric work.

Harris L. Browne, of the firm of Browne & Borum, was one of the speakers at the exercises held at the Second Presbyterian Church, Third and Pontotoc Street, after the signing of the armistice.

The Southern Heating Co., formerly on Jefferson Avenue, has moved to larger quarters on South Second Street, near Beale Avenue.

Eichberg & Lang, Jefferson Avenue, report considerable repair work in heating at Memphis, but little new work.

The Memphis Heating Co., North Second Street, is remodeling the heating system in Bry-Block Mercantile Co.'s store and in several residences in Memphis.

Fischer Heating Co., South Third Street, is installing the heating in the telephone building at Jackson, Miss.

Borum Heating & Plumbing Co., of Poplar Avenue, is installing the plumbing and heating in several residences here.

Since the ending of the war, the city authorities expect to go forward in a few months with the construction of the $750,000 public auditorium voted sometime ago. It is said that this will be erected on the site of the old court house on North Main Street. The commission is composed of R. R. Ellis, chairman; W. C. Duttlinger, secretary; John T. Walsh, Henry C. Loeb and Max Allen.

Two large hospitals are also contemplated, the ground having been purchased in Memphis sometime since. The Oakdale Memorial Hospital, a tuberculosis hospital to be erected on the Pigeon Roost Road, near Oakdale, and the Methodist Hospital, which is to be located on the Lamar Boulevard.

Missouri

St. Louis and Vicinity.

L. McNamara is installing the plumbing in the new Y. M. C. A. building at Grand and Sullivan Streets. This building will cost $200,000 and the plumbing will run around $15,000. Mr. McNamara is installing a complete circulation system in the building, also a full quota of shower baths. The swimming pool is 60x40 feet. The Sodemann Heat & Power Co. secured the heating contract. The new building will be completed by next March. Mr. McNamara also is doing $7,500 worth of plumbing for St. Louis University.

C. O. Smith Plumbing Co. has been held up on a big plumbing job in a new apartment house at 4459 Olive Street by delayed shipments of material from the Eastern manufacturers. There are 56 apartments in this building and the plumbing job is a large one. Some of the material for this apartment was ordered many months ago.

St. Louis plumbers are now figuring on two big jobs in St. Louis County—the new Christian Brothers' School on Pennsylvania Avenue, and the building to be erected by the Brothers of Mary, another Catholic organization, at Kirkwood. The Christian Brothers' School will involve a total outlay of $200,000, and the Brothers of Mary expect to expend $250,000 on their new home. The plumbing in both jobs will average about 10 per cent of the total outlay. The Christian Brothers' School, at Kingshighway and Easton, was destroyed by fire two years ago. The City of St. Louis is figuring on using the old building for a negro infirmary. The walls are still standing. The reconstruction will cost several hundred thousand dollars. If this plan is finally adopted by the municipality, it will provide another big job for the plumbers of St. Louis.

Sodemann Heat & Power Co. will install two low-pressure heating boilers in the basement of the Ely-Walker Dry Goods Co.'s building at Sixteenth and Washington Streets.

The Master Plumbers' Association of St. Louis held its

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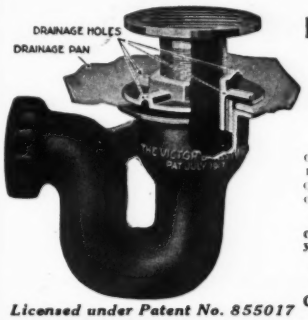

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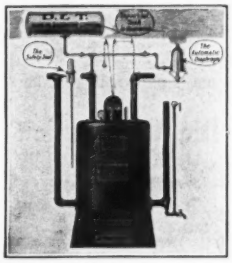

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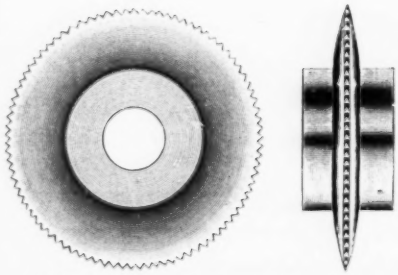

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first meeting, since the influenza ban was lifted, on November 25. The influenza ban was on for two weeks in St. Louis. Public meetings were prohibited, but this has not prevented plumbers from going ahead with work on hand and figuring on new work.

There has been a lot of repair work in St. Louis this fall, also some pretty big new jobs.

J. Sheehan & Sons are installing the plumbing in the new Scullin Steel plant.

Pennsylvania

Pittsburgh and Vicinity.

S. S. White has the contract for installing modern plumbing in a handsome new Y. M. C. A. building in Schenley Park. The outlay on this structure is estimated at $10,600.

David Lupton Sons Co. has the contract for the erection and equipment of a new ventilating system in the Allegheny plant of the Pressed Steel Car Co.

The contract for a new gas producing plant, including plumbing and other accessories, has been awarded to Pihl & Miller, Wabash Building. The plant is to be constructed at Connellsville, Pa., for the Capson Glass Co.

During the last week a large increase in the number and size of building permits issued by the local department of building inspection is noted. Restrictions are off and indications are that there will be a tremendous increase in the scope of building operations here within the next few weeks. Among the more important permits are the following: Herman Kamin, three double two-story brick veneer residence buildings, to cost $24,000; P. F. W. & C. R. R., a one-story brick shop, Columbus Avenue near Allegheny Avenue, to cost $20,000; City of Pittsburgh, one-story frame buildings in Schenley Park, to cost $10,600.

One of the most elaborate and enjoyable social functions ever arranged by the Master Plumbers' Association here was the farewell dinner and dance given on Wednesday night in honor of Joseph A. Weldon, president of the organization, who is leaving Pittsburgh shortly for overseas service in France and other European countries, with the Knights of Columbus relief organization. Mr. Weldon recently volunteered his services to the Knights, of which he is a prominent and active member, and they were accepted. He is now awaiting his passports. Announcement of his determination to enter war relief service was only recently made known, and it came as a surprise to all except his most intimate friends and associates. Mr. Weldon is president of the Weldon & Kelly Co., and is highly regarded not only for excellent business qualifications but for his warm and genial personality in private life. The dinner was given at the Hotel Chatham and was attended by practically the entire roster of master plumbers as well as a large number of friends in various other crafts.

Philadelphia and Vicinity.

Wells & Newton have been awarded the contract for the installation of plumbing, and S. A. Jellett Co. that for the heating in the hotel being erected in Bristol.

The S. A. Jellett Co. has also been awarded the contract for the installation of the heating system in the public school, which is to be erected in Harriman, for the Merchants Ship Building Co.

Hoffman-Wolf Co., of this city, has been awarded the contract for installing the plumbing in the engine house, which is to be erected in Essington.

C. J. Doyle, of Twenty-first and Pine Streets, will install the plumbing in the new building, which is to be erected at the Frankford Arsenal.

Boon & Sample, of 1708 Arch Street, have been awarded the contract for the installation of plumbing in the transfer shed, being erected for the Mantua Transfer Co., at the corner of Fiftieth Street and Parkside Avenue.

B. Landau, of 1216 North Fourth Street, has the contract for the installation of plumbing in a row of houses, being erected by the Du Pont Powder Co.

Bender & Campbell, of Bethlehem, have secured the contract for the installation of plumbing in the new market house, now being erected by the city of Bethlehem. The contract amounts to $6,000.

F. C. Apgar, of Easton, will install the plumbing in a store building, being erected for the Ralph Bros. Furniture Co., in that city.

George B. Grey, of 115 South Sixteenth Street, has secured the contract for the installation of plumbing in the G. W. Smith & Co.'s new factory on Tinicum Avenue.

Indiana

Indianapolis and Vicinity.

Work on plans for the huge intercepter which will be built to carry Indianapolis's sewage to the municipal sewage disposal plant, which is to be erected at the Seller's farm southwest of Indianapolis, has been begun, according to Frank C. Linkenfelter, city civil engineer and president of the board of sanitary commissioners. Definite action toward the building of the intercepter and the plant will be taken as soon as the government restriction on the sale of municipal securities is modified or removed, the city officials say. The work on the intercepter, the estimated cost of which is $300,000, will be started first. The total cost of the sewage disposal system will be approximately $2,000,000.

The Peerless Plumbing Co., of 2432 North New Jersey Street, Indianapolis, has received the contract for the installation of modern plumbing in the new $11,000 Y. M. C. A. building that is to be erected at the aviation repair depot at the Indianapolis motor speedway. The heating contract was awarded to the Rybolt Heating Co., of 632 Massachusetts Avenue, Indianapolis.

Other Cities in the State.

The action of the Government in abandoning its plans of erecting 187 homes for war workers, at South Bend, prevented the city authorities there from amending the plumbing section of the building code, which was to have been done at the suggestion of the Government. The Government authorities, it is said, were astounded at the tremendous cost that would have been entailed in the installation of plumbing in the 187 houses, if the provisions of the code were followed, and as a result requested that it be amended. The proposed changes, it is said, called for the use of lighter material in installing plumbing in private residences in order that both material and cost might be conserved. It is said that now that the war has ended, and no houses are to be erected in South Bend by Uncle Sam, there will be no attempt made to amend the code until next spring at least.

The McIntosh Plumbing Co., one of the progressive plumbing and heating firms of Kokomo, has moved from 219 South Union Street to more commodious quarters at 201 South Main Street. The new location not only gives the firm larger working quarters but enables it to carry a much larger stock of fixtures and supplies.

J. J. Paine, of 546 North Jefferson Street, Huntington, has secured the contract for the installation of a $10,000 vacuum heating system in Erie Railroad Co.'s building.

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No. 4	400 " "	$40.00

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THIS Pipe Cutter is not only the strongest and most rapid working, but it is the cheapest, by reason of its taking a larger range of pipe than any pipe cutter known.

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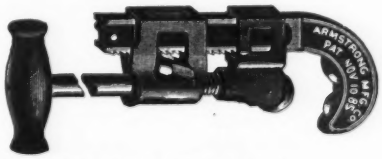

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—of—

Pure White Bathroom Fixtures

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Post Brackets only 2½ in. Smallest ever made.

Order Sample

The up-to-date, better kind.

Order from your jobber.

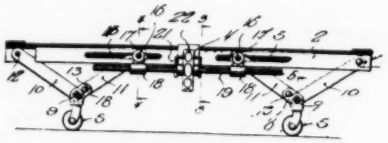
Bay Ridge Specialty Company, Inc.

Trenton, N. J.

Patents

Plumbing Department.

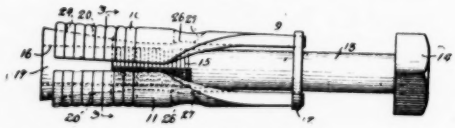
1,273,214. Portable Cradle for Bath Tubs. Thomas M. Gleason, Racine, Wis. In a cradle of the class described having a frame including inverted-U-shape side sills provided with companion sets of slots in their inner walls, end sills and a center sill having depending slotted ears; the combination of raising and lowering instrumentalities including a spindle provided with a central wheel fitted between the sill ears, the spindle being extended through the ear slots, a pair of bored cross couplings each having an arm in threaded union with an end of the spindle, spindle suspension rods extending through the other arms of the cross couplings and side sill slots, friction wheels carried by the rods and located between the side sill walls, pairs of end links pivotally mounted between the walls of the aforesaid side sills, whereby they are held against lateral movement, pairs of floating links in pivoted union with the rods and located between



1,273,214.

the side sill walls, whereby they are held against lateral movement, a pivotal connection between the other end of each pair of floating links and the companion pair of end links, and caster wheels mounted at the pivotal union of the sets of links.

1,281,272. Expansion Bolt. Dwight W. Bennett, Philadelphia, Pa. An expansion bolt including an expansion sleeve having sections adapted to be separated; an ex-

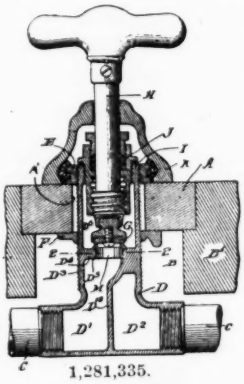


1,281,272.

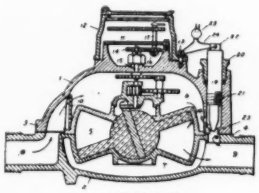
pansion nut movable into said sleeve to separate said sections to various extents, said sections having elongated slots therein including enlargements extending transversely to the length of said slots; and lugs on said expansion nut and of greater length than the length of said enlargements, whereby the lugs must be moved into said enlargements and then turned in a transverse direction in order to be moved through said enlargements, substantially as described.

1,281,335. Lavatory Fitting. James Fraser, Wilmington, Del., assignor to Speakman Company, Wilmington, Del., a corporation of Delaware. A valve body formed with inlet and outlet chambers and with an externally threaded tubular extension, formed internally with a transverse partition between its ends, and with a longitudinal partition extending inwardly from said transverse partition and separating said inlet and outlet chambers, said transverse partition being formed with a central port communicating at its inner side with one of said cham-

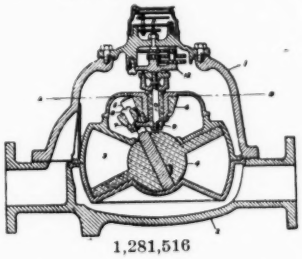
bers, and being formed with one or more other ports, each communicating at its inner end with the other of said chambers, a closure for the outer end of said tubular projection, a valve controlling said central port, provided with a spindle portion projecting through said closure, and clamping means threaded on said tubular portion and adapted to clamp the valve body against a plate or apertured support, through which said tubular projection may extend.



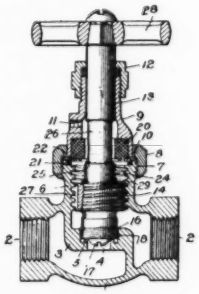
1,281,335.



1,281,665



1,281,516



1,281,791.

1,281,665. Liquid Meter. Earl R. Ryder, Buffalo, N. Y., assignor to George B. Bassett, Buffalo, N. Y. A liquid meter comprising a semi-positive liquid operated device, a registering indicator operated by said device, a bottom casing with inlet and outlet spuds, a separable top casing with a compensating by-pass adapted to pass a portion of the liquid to be measured around said device, and means to regulate the flow through said by-pass; substantially as and for the purpose described.

1,281,516. Liquid Meter. Walter J. Chellew, Buffalo, N. Y., assignor to George B. Bassett, Buffalo, N. Y. A liquid meter comprising a nutating measuring disk and its driving spindle, an indicator and gearing for operating said indicator, a lever rigidly mounted on the lower end of the driven shaft of said gearing, and a bearing roller block mounted on the free end of said lever with its axis substantially in a plane with the axis of said driving spindle; substantially as and for the purpose described.

1,281,791. Compression Stop and Waste Cock. Richard Klug, Pittsburgh, Pa., assignor to the Oberndorf Manufacturing Co., Pittsburgh, Pa., a corporation of Pennsylvania. In a stop and waste cock, the combination of a casing having a valve seat at the bottom of a cylindrical wall uprising from said seat and having a neck above said seat, a bonnet adjustably connected to said neck and provided with a waste outlet, an annular packing in said casing arranged to be compressed and the opening therethrough varied by the adjustable connection of the bonnet to the neck, and a valve stem having a threaded connection in said casing and at its lower end carrying a circular valve disk fitting within said cylindrical wall and controlling said valve seat and having a

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Iron Pipe Couplings

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How many, either pounds or pieces, have you of various sizes?

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Requires hard work on your part.
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Embodies a new and exclusive DOLE principle by which you can have every degree of opening required in vacuum or vapor steam heating.

This Adjustment is easily made while the steam is on.

Nothing like it on the market.

Furnished with the DOLE without extra cost.

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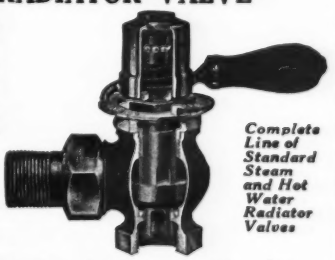

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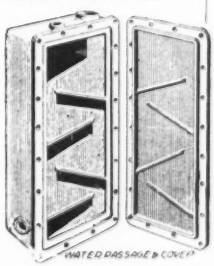
Can't you see what a business builder this will be for you? Wire at once for complete information.



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¶ An illustration of this idea will appear in next week's issue. Title, "APPROVED". Watch for it.

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Kerosene Water Heater

Here is a REAL Kerosene heater. Heats as HOT and FAST as a gas heater. Patented wickless burner generates its own gas, and throws a clean, powerful, odorless flame. Will run over 12 hours on a gallon. Send for catalog and folder.

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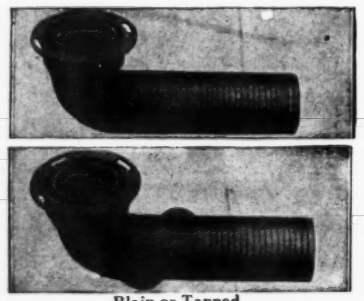
Adjustable Iron Closet Bends



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4 in. Dia. 12-15-18 in. long.

They cost no more than the ordinary kind and the constantly increasing demand attest their superiority.

Made of best grade soft gray iron.

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Hot Water - Steam Vapor and Vacuum Heating
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This Catalog contains interesting details on

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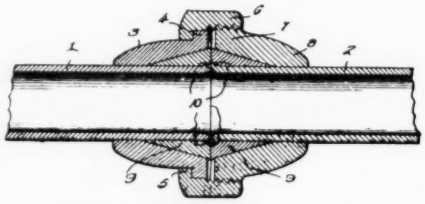
The Celebrated Bell Washers, Fuller Balls, Steam Valve Discs, and all kinds of small molded rubber goods.

Samples by parcel post.

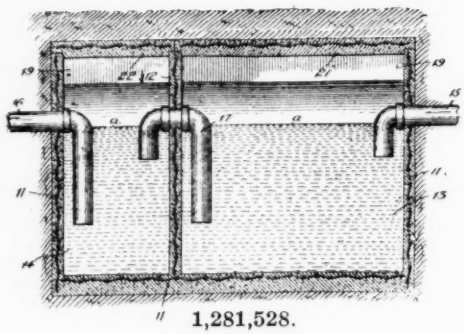
ESTATE of ANDREW BELL, 2-4-6 Commercial St., Newark, N. J.

portion co-operating with said annular packing and controlling a passage to said waste orifice, said portion being arranged to open said waste passage when the valve disk is within said cylindrical wall and to keep said waste passage closed until said valve disk passes within said cylindrical wall.



1,281,498.

1,281,498. Pipe Union. Peter M. Brevig, Ramsay, Mich. A coupling including a pipe having an upset end, a structure having a pipe associated therewith to be joined to the first named pipe, a member adjacent said upset end of said pipe having a conical bore therethrough, a yieldable sleeve having its outer periphery tapered to fit the bore in said member, and means for clamping the structure and said member together so that the broadest portion of said sleeve will abut with said upset portion and the structure to make a water-tight joint between the pipe.

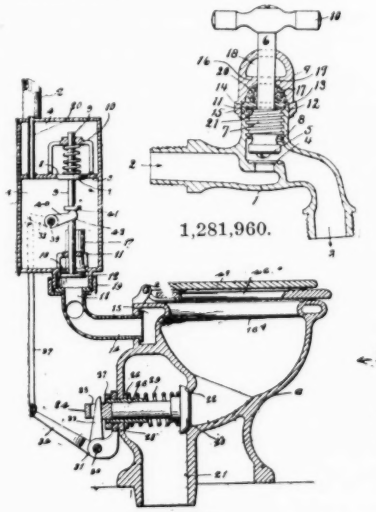


1,281,528.

1,281,528. Combined Septic Tank and Privy. James B. Davis, Wilmington, N. C., assignor, by direct and mesne assignments, to Standard Cement Construction Co., Wilmington, N. C., a corporation of North Carolina. A septic tank comprising a longitudinally cylindrical hollow body portion having an opening therein, a supporting base for said tank including a downwardly projecting relatively thickened flat base of a width less than the diameter of the said body portion and of a length equal to the length of the tank, an upwardly projecting wall of rectangular formation surrounding the opening in said tank, a transverse partition intermediate the length of the tank designed to extend upwardly to the uppermost edge of the surrounding rectangular wall and provided with an opening near the top thereof, and end walls for said tank.

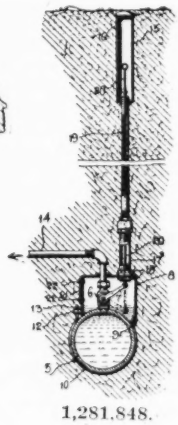
1,281,960. Faucet. Reuben B. Hills, Northampton, Mass., assignor to the Haydenville Company, Haydenville, Mass., a corporation of New Jersey. The combination, in a faucet, with the casing and valve stem of the faucet, of a dome-shaped one-piece cap mounted on said casing around said valve stem, and divided by a horizontal partition into upper and lower semi-spherical chambers, said upper chamber being adapted to contain a lubricant, and packing elements in said lower chamber.

1,281,457. Water Closet. George O. Whitney and Arthur W. Ide, Brainerd, Minn. In combination, a closet bowl having a movable plunger, a flushing tank having an upper and lower water compartment provided with outlets, a discharge pipe connecting the bowl with the lower water compartment of the flushing tank, valves for closing the outlet openings of each of the water compartments, and means for opening the plunger of the bowl closing the communication between the bowl and lower water compartment and establishing a communication between the upper and lower water compartments to permit the lower compartment to be filled with water, said means adapted to be actuated to close the communication between the upper and lower compartments and reseat the plunger of the bowl and open the communication between the lower compartment and bowl to provide a water seal.



1,281,960.

1,281,457.

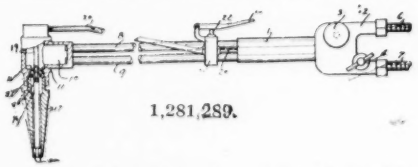


1,281,848.

1,281,848. Cut Off Valve for Water Service Pipes. Henry Saxlund, Lisbon, N. D. The combination with a water supply conduit, house service pipe and a valve connecting the pipe to said conduit, of a housing for the valve, means for detachably clamping the housing upon the conduit, a rod operatively connected to said valve and operable from the street, and guide means for said rod connected to the top wall of the housing.

Heating Department.

1,281,289. Cutting and Welding Torch. Edward P. Carlson, Seattle, Wash. In an acetylene cutting and welding torch having a hollow head with independent gas and oxygen inlets and an auxiliary oxygen inlet, the combination of an auxiliary oxygen tube passing through the said head, an annular groove around the outlet of the auxiliary



1,281,289.

oxygen tube, radial perforations connecting with the interior of the head and the said annular groove, a disk shaped mixer member, an annular groove in the upper face of the said disk shaped member, the last mentioned groove co-operating with the first mentioned groove, a tubular member centrally located with respect to the said

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A standard line of Plumbers' Brass Supplies with an established reputation for

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make toilet rooms **odorless and sanitary.** No chemicals. In demand wherever there is a water closet.

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Makes No Noise

A Quiet Pump in Your Home

You can keep Pump noise out of your home by keeping out the kind of a Pump that makes a noise.

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PORTABLE SHOWERS

SPECIAL PRICES IN DOZEN LOTS

SHOWERS OF ALL DESCRIPTIONS

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Suction Pumps *and* Complete Water Supply Systems

pumping capacities 120 to 1,000 gallons per hour. Efficient Deep Well Pumps with Hyatt Roller Bearings and silent chain drive, pumping capacities 150 to 2,000 gallons per hour. **Write for bulletins and price sheets.**

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No. 2A Thermostat

MFG. CO. ROBERTSHAW YOUNGWOOD, PA.

The standard for 30-40 gal. boilers, and single coil heaters or equivalent. Has ¾-in. gas openings.

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Some of the most prominent contractors who have been using our bench for the last five years have recently given us several individual re-orders for over 100 benches.

Don't hesitate to drop us a line and we will send you the names and addresses of hundreds of satisfied users.

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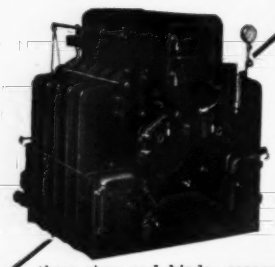
New Allen Gas Sodering Tool

We couldn't begin to recite its virtues in this tiny space; it wouldn't be fair to try. So just send for a Tool on trial, for delivery through your jobber, giving his name and address. L. B. ALLEN COMPANY, 4526 No. Lincoln St., Chicago, Illinois.



The Newport

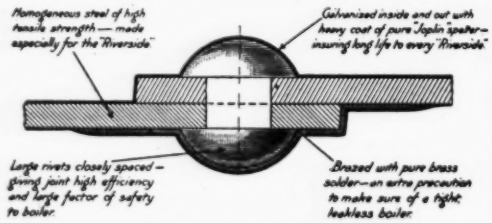
The Magazine Feed Boiler with the Adjustable Throat

The Patriotic Boiler

This year home owners will be forced to take various sizes and kinds of fuel—pea and buckwheat along with chestnut, range and egg. Also non-caking nut soft coal. The Newport is the only boiler which burns efficiently all these sizes and kinds—separately or mixed. Thus your customers are safe, for unusual fuel conditions are overcome. Send for "Newport Heating" document.

Newport Boiler Company
107 South Dearborn Street Chicago

The "Riverside" Riveted and Brazed Seam


Homogeneous steel of high tensile strength — made especially for the "Riverside"
Galvanized inside and out with heavy coat of pure Joplin spelter — insuring long life to every "Riverside"
Large rivets closely spaced — giving joint high efficiency and large factor of safety to boiler
Brazed with pure brass solder — an extra precaution to make sure of a tight, leakless boiler

The Strongest and Tightest Seam on any Range Boiler

Riverside Boiler Works, Inc.
Cambridgeport, Mass.

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You Will Want More

ELASKO

Pipe Joint Cement

is an elastic cement that will make a perfectly tight joint on Gas, Steam, Water and Air Pipes.

Mix with boiled linseed oil. Joints stay tight, but never set.

You have tried the rest—now use the best—the ELASKO.

Made by

F. M. Stearns & Co.
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Tank Fittings of Quality

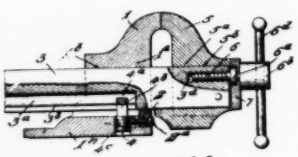
1856 "McSHANE" 1918

The ORIGINAL Compound Lever Ball Cock, Elevated, Low-Down, Top and Bottom Supply. Tank Levers and Valves.

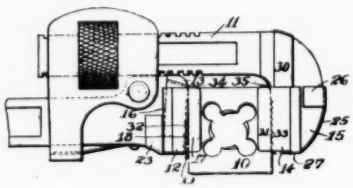
McSHANE BELL FOUNDRY CO.
BALTIMORE, MARYLAND

disk and communicating with the auxiliary oxygen tube perforations communicating with the annular groove in the disk and passing through the said disk and arranged in staggered relationship with the first mentioned perforations, whereby the gas and oxygen are mixed as they pass through the first mentioned perforations, the annular grooves and the perforations in the disk.

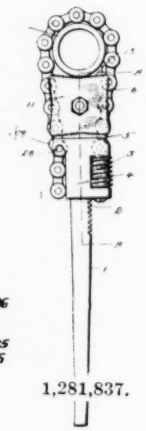
1,281,499. Quick Action Bench Vise. Peter Broadbooks, Batavia, N. Y. In a vise of the character described, a stationary jaw formed with a fulcrum within the opening in said jaw, a plain surfaced rectangular sliding bar having a slideway milled in it, a clutch member having a flanged head engaged with said slideway and attached to said stationary jaw so that the flanges of the head will bear upon the lower wall of the said slideway, whereby the sliding bar will be locked and adjustably anchored and held in operation upon said fulcrum block when in its normal position; and a sliding jaw fitted upon the outer end of the sliding bar, as and for the purpose set forth.



1,281,499



1,281,294.



1,281,837.

1,281,294. Tool Holding Attachment for Wrenches. William J. Clooney, St. Louis, Mo. The tool holding attachment for wrenches comprising an upper clamp formed of a single resilient sheet of material formed to embrace the movable jaw of a wrench, and having a serrated face; and a similarly formed lower clamp adapted to embrace the fixed jaw of said wrench and having a serrated face; and a spring arranged beneath the face of said lower clamp to cause it to assume and maintain parallelism with the opposing face of the upper clamp.

1,281,837. Wrench. James J. Rhinelander, Pittsburgh, Pa. A wrench consisting of a straight shank having a bolt extending through the end thereof, a square jaw member rigidly held to said shank and upon each end of said bolt, said jaw members each having four substantially straight toothed edges and a chain co-acting with said members to clamp a pipe, one edge of each of said members being at right angles to said shank and parallel with one another to hold a pipe in alinement with said shank, said shank having one toothed side, a collar slidable on the shank, a screw on the collar engageable with said side, one end of said chain being directly secured to said collar.

"You must be crazy, Isabel. I've asked you repeatedly to be economical, and yet you go and order the most expensive fur coat in the shop."

"Well, I don't mind being economical, but I do object to looking economical."—"Life."

THE WHY AND WHEREFORE OF SANITARY ENGINEERING.

(Continued from Page 325.)

considerable height above the well. This class of water is considered by many to be the best that can be found in large quantities.

Shallow Well Water.

A shallow well is shown in Fig. 5. It is sunk through a pervious strata, until a water bearing strata is reached. Generally, it is looked upon as the worst class of all waters. It is nearly always contaminated and contains large quantities of organic matter in solution. Most of our farm houses are dependent upon these wells for their water supply, and they are often found in the center of the stable yard where the sewage from horses, cattle, etc.,

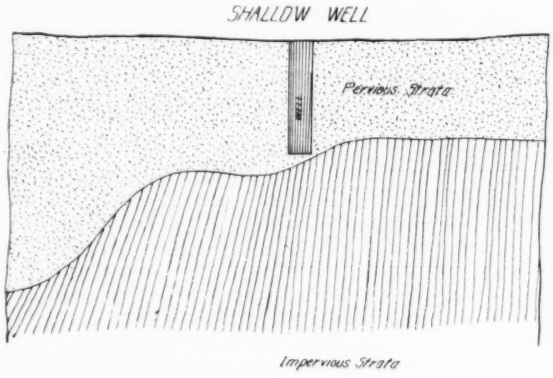


Fig. 5.

is readily washed into the earth with each rain, finds its way into the well and pollutes the water. It should not be forgotten that it is possible for a shallow or surface well to be 100 or more feet deep, while a deep well may be less than 10 feet in depth. The former yields surface water, the latter underground water.

Upland Surface Water,

This may be defined as water from springs, streams, rivers above the line of cultivation and human habitation. It is immaterial whether it is derived from highland or lowland, unless it is actually swampy, all waters from entirely uninhabitated tracks of land should come under this heading. Such water is a very common source of supply, especially if from really highland, as for example, the fall of mountain streams. The water from this source is very pure, and it is seldom that it is not pure enough. It is nearly always soft, consequently it is likely to have a solvent action on metals.

Stored Rain Water.

The quality of stored rain water varies very considerably. In the large cities it is usually very impure, collecting the impurities as it falls through the air and in washing the roofs of buildings, while in the country it will be more or less impure. The chief quality of rain water is its softness, but it is not appreciated as a drinking water for it is insufficiently aëreated and short of oxygen. Should it contain much organic matter, decomposition will take place during storage, and the water will emit an objectionable odor.

Surface Water From Cultivated Lands.

Occasionally this water is excellent, yet it must always be looked upon with suspicion, owing to the amount of sewage scattered on the land. Such water should not be used for domestic purposes as it contains, at certain

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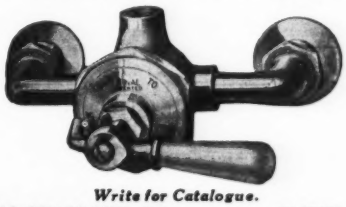
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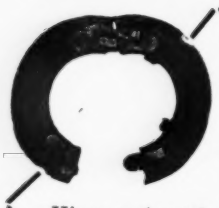

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Nickeled on copper. Highly polished. Sizes, ⅛-in. to 3-in.

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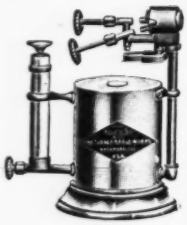

Perfect combustion, not only means the consuming of every particle of gasoline, but produces a higher degree of heat, greater efficiency and economy. This accounts for the unusual success of the

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HAND or POWER

This means that the MYERS CENTURY POWER PUMP can be operated by hand should it become necessary.

It is designed for open or pressure tank service and adapted for many other pumping jobs.

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AT OUR EXPENSE

This liberal offer is for plumbers who have never used **BLUE SEAL.** It gives an opportunity to try at our expense the original Money Back Drain Pipe Solvent.

Cut out this advertisement, mail it direct to us with your own address—and your jobber's. We will then send you, transportation charges prepaid, six one dollar cans (2 lbs.) **BLUE SEAL**

DRAIN PIPE SOLVENT

Use these six cans according to directions to clear waste and drain pipe stoppages. If the Solvent does all we claim for it you are to send us $3.60 (special price for plumbers) within ninety days. If not the trial costs you nothing.

10,000 plumbers now use **Blue Seal.** Over 300 jobbers stock, sell and recommend it. If you haven't used it, this is your opportunity.

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417 E. 16th St. New York

periods of the year, a quantity of organic matter, which is the worst form of contamination.

River Water.

If the water is taken from the source above the line of cultivation and human habitation it is nearly always pure and soft, but, if withdrawn at a lower point, it must be looked upon with suspicion, as sewage matter is often allowed to flow into it.

Lake Water.

The quality of lake water was excellent at one time, but the ever-increasing traffic and subsequent pollution, coupled with the multitudinous trade and manufacturing wastes, finding their way into our great lakes, is a constant source of worry to the water engineers. On the whole, the water may be classed as wholesome, but should be withdrawn some sixty or more feet below the surface. Lake water may be soft or hard, according to the composition of the bed of the lake.

(To be Continued.)

RULING ON TAX EXEMPTIONS ON BONDS FOR BENEFICIARIES.

The Treasury Department has just made a very important ruling under the act known as "Supplement to the Fourth Liberty Bond Act," enacted by Congress last month for the purpose of exempting from all taxation $30,000 par value of Fourth Liberty Loan Bonds in the hands of any one individual. This ruling relates to cases where there are two or more beneficiaries in a trust, all income to be divided. In response to query as to whether $30,000 par amount of Fourth Liberty Loan Bonds would be exempt in the case of each beneficiary or only $30,000 for the entire trust, the Department rules:

A question has been presented of a case where there are two or more beneficiaries in a trust, all income to be divided. In such cases may the trustee hold free from excess profits taxes $30,000 principal of Fourth Liberty Loan for each beneficiary, or only $30,000 for the entire trust?

The following ruling on this subject has been made:

"Fourth Liberty Bonds subscribed for by a trustee, income on which is regularly or annually distributable to a specific beneficiary, are regarded for taxation purposes as bonds of such beneficiary and exemptions upon or in respect of such bonds apply to total holdings of beneficiary directly and through trustee."

GET YOUR SHARE NOW.

Enough War Saving Stamps now have been sold to make nearly $8 for every individual in the United States, according to the latest report from national war savings headquarters. Total sales have passed $825,000,000 and now are increasing at the rate of nearly $100,000,000 a month.

Ohio still leads the states with the largest monthly and aggregate sales, but Nebraska reports higher per capita sales. Total sales in Ohio are $66,730,000, a per capita of $12.68. Nebraska's per capita is $19.42, with total sales of $25,188,000. Illinois ranks twenty-fifth among the states in per capita sales, with a per capita of $7.38 and total sales of $46,363,000.

New Name, Old Disease.

Two girls were quarreling.

"Oh," said one, "I'm sick of you! I believe you can't help it, though. You've got a chauffeur's tongue!"

"What?" cried the other girl, scared. "Is it catching? How does one get it?"

"Oh," said the other pointedly, "through constantly running people down."—"Pittsburgh Chronicle-Telegraph."

ZONING SYSTEM SAVING MILLIONS IN TRANSPORTATION OF COAL.

Estimates made earlier in the fuel year, that approximately 160,000,000 car miles would be saved in the coal year through the operation of the zone system for the distribution of bituminous coal, are being fully realized, it was announced this week, by the United States Fuel Administration.

This system, made possible through the close co-operation of the United States Railroad Administration with the Fuel Administration, has had a large share in bringing the nation's supply of bituminous coal to its present proportions, which, with patriotic economy, will be sufficient for the winter's requirements.

This method of distribution was established so that the coal supply of all sections of the country should normally be derived from mines relatively near, thus preventing abnormal and wasteful transportation movements, and insuring more equal distribution of cars to the mines and the more steady employment of mine labor.

Early estimates were that the movement of bituminous coal affected by the zone system would involve about 300,000,000 tons, or 60 per cent of the total production. The latest figures, show that 368,858,000 net tons of this kind of coal have been produced and delivered since April 1, 60 per cent of which is affected by the zone system.

These later figures show that even more than the originally estimated 160,000,000 car miles will be saved in round trips to and from the mines and that considerably more than the 300,000 aditional trips, which the saving in car miles would effect, will be made. Exact figures have not been compiled, but the early estimate allowed for the 300,000 additional trips being the equivalent of 5 per cent increase in the production.

December 6 and 7, 1918.—Convention of the National Federation of Building Industries, in Atlantic City, N. J., with headquarters at Hotel Traymore.

December 11 and 12, 1918.—The regular quarterly meeting of the National Association of Brass Manufacturers, in New York City, at Hotel Astor.

January 14, 15 and 16, 1919.—The annual convention of Iowa Master Plumbers' Association, at Cedar Rapids, Iowa.

History's Verdict.

The Kaiser: "You told me they had no ships, but they are here. You told me they could not charter any ships, but they are here. What ship brought them?"

Adjutant-General: "The Lusitania, your Majesty."
—"Kansas City Star."

There was a man who fancied that by driving good and fast
He'd get his car across the track before the train came past;
He'd miss the engine by an inch, and make the train hands sore.
There was a man who fancied this; there isn't any more.
—"Railway Conductor."

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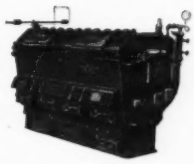
For Steam, Water, Vapor, Vacuum, Heating

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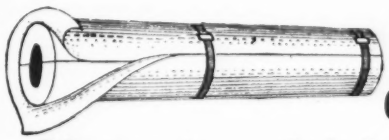
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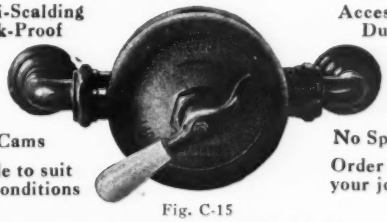
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Classified Advertisements

The charge for advertisements under this heading is $1.00 for 25 words or less, including heading and address; 4 cents each for additional words. To insure insertion, copy and remittance should reach us by Wednesday morning.

Situations Open

WANTED—BY MANUFACTURER OF plumbers' brass goods, young man for cost accounting department. Excellent opportunity for future. Address 2575, care "Domestic Engineering", 407 S. Dearborn St., Chicago. 11-30/4

WANTED—BOOKKEEPER, MALE OR female. Must have executive ability and fair knowledge of plumbing and heating line. Apply by letter only, stating experience and salary desired. Weber & Hamilton, Inc., 56 Hallett St., Long Island City, N. Y. 11-30

WANTED—CAPABLE MANAGER FOR plumbing, heating and mill supply house located in South. Good opportunity and good pay. Situation now open. Address 2560, care Domestic Engineering, 407 S. Dearborn St., Chicago. 10-12; 11-30

WANTED—FOREMAN, STEAMFITTER, experienced in heating and power plant work. Must be able to make working drawings and estimate costs. Give age, experience, references and salary expected. Apply, Industrial Heating & Engineering Co., Akron, O. 11-23; 30

Situations Wanted.

POSITION WANTED — TRAVELING salesman, experienced plumbing, heating, mill supplies, offers his services to the highest bidder. Competent as sales manager, etc. Address 2574, care "Domestic Engineering", 407 S. Dearborn St., Chicago. 11-30; 12-7-14.

WANTED—POSITION AS ESTIMATOR, designer or superintendent, heating and plumbing. Twenty years' experience. A-1 references. W. R. Sinish, 604 Sixth Avenue, Leavenworth, Kansas. 11-30

POSITION WANTED—BY FIRST CLASS combination plumber and fitter anywhere in the South. Can furnish reference. Steady and reliable. Address 2573, care "Domestic Engineering", 407 S. Dearborn Street, Chicago. 11-30;12-7-14

POSITION WANTED — BY EXPERIenced salesman of plumbing and heating supplies. Practical man who understands laying out of work in both branches. Address 2567, care "Domestic Engineering," Chicago. 11-2-30

POSITION WANTED—BY LIVE MARried man thoroughly familiar with plumbing and heating business, as estimator or manager of plumbing and heating concern. Address 2572, care "Domestic Engineering," 407 S. Dearborn St., Chicago, Ill. 11-23/12-14

POSITION WANTED—WILL BE OPEN for position as manager or assistant manager for a plumbing and heating supply house after Jan. 1, 1919. Have had six years' warehouse experience, two years managing an office and five years calling on architects. Can furnish best of references. Address 2570, care "Domestic Engineering," 407 S. Dearborn St., Chicago. 11-23; 30

For Sale.

FOR SALE—PROFITABLE PLUMBING and heating business. Established 1893. Can reduce stock to suit buyer. Owner wishes to retire. Henry H. Kruger, Omaha, Nebr. 11-30/12-7

FOR SALE — FULLY ESTABLISHED, successfully going plumbing and heating business; established nine years in one of the largest cities in Florida. Excellent location—five-year lease. Owner interested in other line of business. Address 2571, care "Domestic Engineering," 407 S. Dearborn St., Chicago. 11-23; 30

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WE BUY IRON PIPE COUPLINGS—spot cash. How many, either pounds or pieces have you of various sizes? Gwilliam Supply Co., 615 Christian Street, Philadelphia, Pa. 10-6,tf

SELL YOUR SURPLUS COUPLINGS and fittings. Write us. The A. & J. Mfg. Co., 557 W. Lake St., Chicago. tf

Government Proposals

TREASURY DEPARTMENT, Supervising Architect's office, Washington, D. C., November 19, 1918. SEALED PROPOSALS will be opened in this office at 3 p. m., December 19, 1918, for additions to plumbing, etc., in the United States Marine Hospital, Cleveland, O., in accordance with the specification and drawing, copies of which may be had at this office or at the office of the Custodian, Cleveland, O., in the discretion of the Supervising Architect. Jas. A. Wetmore, Acting Supervising Architect.

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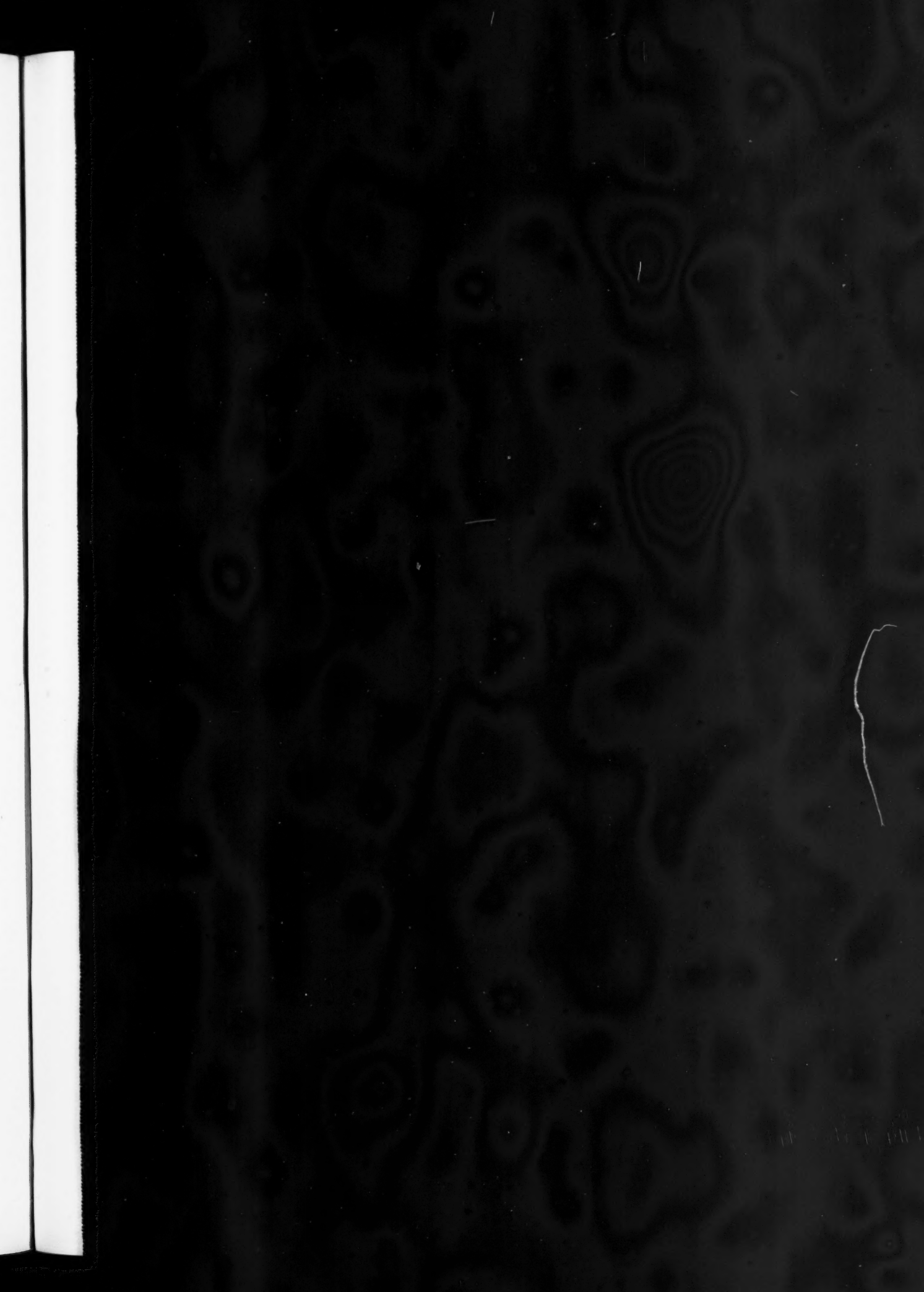
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